



# MISSION X: Train Like an Astronaut

## INTERNATIONAL FITNESS CHALLENGE



**638**  
TEAMS

**24**  
COUNTRIES

**1,364**  
TEACHERS

**15**  
LANGUAGES

**23,427**  
STUDENTS

**11**  
SPACE  
AGENCIES

**1 MISSION**





GERMANY



FRANCE



COLOMBIA



GERMANY

GERMANY



DENMARK



COLOMBIA



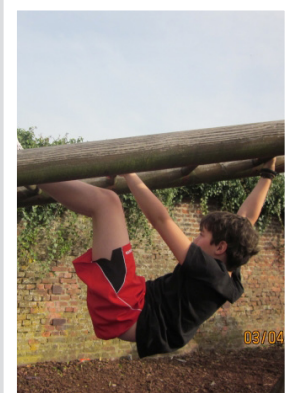
AUSTRALIA



FINLAND



AUSTRIA



BELGIUM





CZECH REPUBLIC

## Executive Summary

*The Mission X: Train Like an Astronaut Challenge* was developed in 2009 to encourage proper exercise and nutrition at an early age by teaching young people to live and eat like space explorers. The strong correlation between an unhealthy childhood diet, adolescent fitness and the onset of chronic diseases as an adult is the catalyst for Mission X. Mission X is dedicated to assisting people on a global scale to live healthier lifestyles and learn about human space exploration. The Mission X: Train Like an Astronaut 2014 (MX14) International Challenge hosted 23,427 children on 635 teams, 24 countries and 11 space agencies. The MX14 website included 15 languages.

MX14, the third of three international fitness challenges that made up the first MX multi-year campaign, was sponsored by the NASA Human Research Program which worked with the European Space Agency and other space agencies from around the world. In comparison to MX13, MX14 expanded to include two additional new countries, increased the number of students by approximately 58 percent and the number of teams by 48 percent.

With the growth in the number of countries and participants MX14 had a wider distribution of the MX surveys. Site leader auto registration was developed and implemented with a few lessons learned to improve upon in MX15. Chile and Australia participated as new countries in the Southern Hemisphere. Pre-challenge training materials were made more readily available from the website and a new series of adapted physical activities for people with unique needs was developed and added to the website in all languages.

Mission X is fortunate to have the support of the NASA, ESA and JAXA astronaut corps. In MX14, they participated in the opening and closing events as well as while on-board the International Space Station. Three astronauts have agreed to be MX Ambassadors: Italian Astronaut Samantha Cristoforetti (MX15), United Kingdom's Tim Peak (MX16) and Danish Astronaut Andreas Mogensen (MX16).

The MX14 International Working Group Face-to-Face meeting and closing events were held at the Euro Space Center in Saint-Hubert, Belgium. NASA EDGE was there to record the activities and a NASA EDGE MX production. Ten countries participated with supporting presentation charts from four additional countries. Children from the UK, Italy, Austria and Belgium participated in the closing event. Italy and Austria have offered to host the 2015 and 2016 working group meetings.

MX15 is the start of the second multi-year campaign for MX, and as planning begins, areas of improvement will include a second early challenge to accommodate countries in the Southern Hemisphere including South Korea as well as recommended changes to the MX website, development of a more defined approach to metrics, a change to the format of future MX International Working Group meetings, and proposed new science activities to be developed by the MX international educator working group. We look forward to welcoming many new participants in 2015!

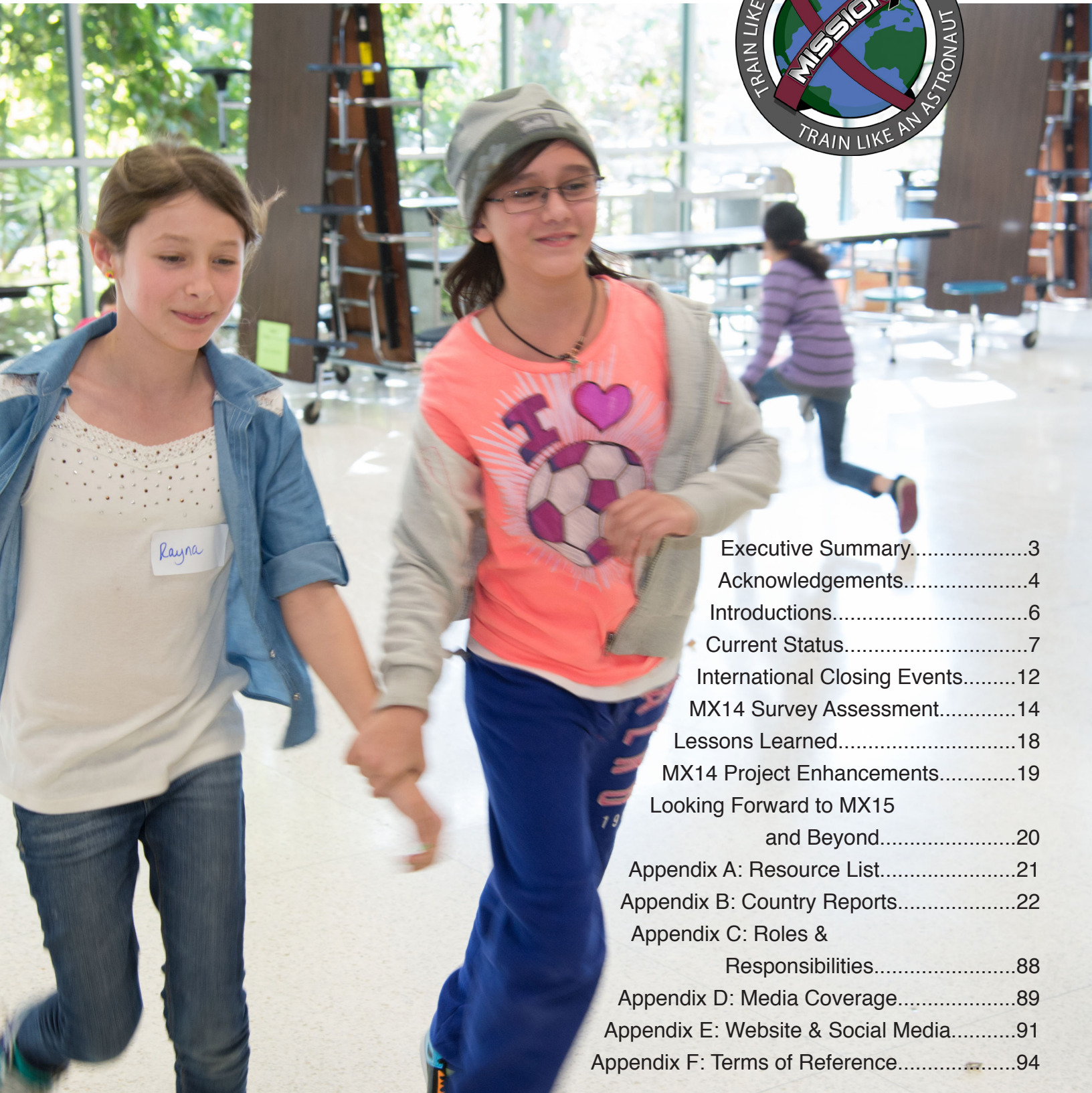
GO MISSION X!

# Acknowledgements

- Alexandra Burtseva, Voronezh Medical Academy
- Alexis Inzulza, Universidad de Talca
- Amilton Moreira, Ciência Viva - Portuguese Agency for Scientific and Technological Culture
- Angela Sur Ip, National Aeronautics and Space Administration (NASA)
- Ann-Catherine Henriksson, Resurscenter för matematik, naturvetenskap och teknik i skolan; Centret för livslångt lärande vid Åbo Akademi och Yrkeshögskolan Novia
- Asako Mochizuki, Japan Space Forum
- Ayami Kojima, Japan Aerospace Exploration Agency (JAXA)
- Charles W. Lloyd, National Aeronautics and Space Administration (NASA)
- Chiaki Yamazaki, Japan Space Forum
- Clair McSweeney, Blackrock Castle Observatory
- Claire Dramas, Centre National d'Etudes Spatiales (CNES)
- Cristina Olivetto, Sterrenlab
- David Cañada Lopez, Departamento de Salud y Rendimiento Humano Facultad de CC de la Actividad Física y del Deporte- INEF Universidad Politécnica de Madrid
- David Morales, Universidad Politécnica de Madrid (UPM)
- David Novotny, Official Czech MX Coordinator, Czech Space Office (CSO)
- Doreen Hagemeister, Italian Space Agency (ASI)
- Germana Galoforo, Italian Space Agency (ASI)
- Gordon McVie, University of Strathclyde
- Hajime Takeoka, Japan Space Forum
- Hannah Garrett, United Kingdom (UK) Space Agency
- Heather MacRae, United Kingdom (UK) Space Agency/ Venture Thinking
- Hege-Merethe Strømndal, Norwegian Centre for Space-related Education
- Ian Christie, Victorian Space Science Education Centre (VSSEC)
- Janethe Abril Castro, Fundación Horizonte 2050 / Colombia
- Jaroslav Urbar, Czech Space Office (CSO)
- Jasper Wamsteker, Netherlands Space Office
- Jeremy Curtis, United Kingdom (UK) Space Agency
- Julian Cardenas, Universidad de Talca
- Jungwon Min, Korea Institute of Child Care and Education (KICCE)
- Kamlesh Brocard, State Secretariat for Education, Research and Innovation (SERI)
- Kana Kuriyama, Japan Space Forum
- Karin Kuepfer, SERI
- Katherine K. Reeves, National Aeronautics and Space Administration (NASA)/Wyle Science Technology and Engineering
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- Marianne Nilsson, Teknikens Hus Sweden
- Martina Redpath, Armagh Planetarium
- Michael Gaffney, parent, Australia
- Michaela Gitsch, Austrian Research Promotion Agency (FFG)
- Michael Pakakis, Victorian Space Science Education Centre (VSSEC)
- Milan Halousek, Czech Space Office (CSO)
- Monica Talevi, European Space Agency (ESA)
- Nataša Đurić, Slovenian Centre of Excellence for Space Sciences and Technologies (SPACE-SI)
- Nicole Sentse, Sterrenlab
- Nubia A. Carvajal, National Aeronautics and Space Administration (NASA)/MEI Technologies
- Peter Habison, European Southern Observatory (ESO) Science Outreach Network for Austria
- Pierre-Emmanuel Paulis, Euro Space Center
- Rafael Lorza-Pitt, Fundación Horizonte 2050 / Colombia
- Ria O' Sullivan, Blackrock Castle Observatory
- Richard Bräucker, German Aerospace Center (DLR)
- Robert Hill, Northern Ireland Space Office
- Rosa Tagliamonte, Italian Space Agency
- Scott David Townsend, National Aeronautics and Space Administration (NASA)/MEI Technologies
- Shamim Hartevelt, European Space Agency
- Shin Yamada, Japan Aerospace Exploration Agency (JAXA)
- Takaaki Okano, Japan Aerospace Exploration Agency (JAXA)
- Tatsuya Aiba, Japan Aerospace Exploration Agency (JAXA)
- Tina Ibsen, Tycho Brahe Planetarium
- Tomas Jorquera, Universidad de Talca
- Yayoi Miyagawa, Japan Aerospace Exploration Agency (JAXA)
- Yvan Fonteyne, Euro Space Center



# Table of Contents



Executive Summary.....	3
Acknowledgements.....	4
Introductions.....	6
Current Status.....	7
International Closing Events.....	12
MX14 Survey Assessment.....	14
Lessons Learned.....	18
MX14 Project Enhancements.....	19
Looking Forward to MX15 and Beyond.....	20
Appendix A: Resource List.....	21
Appendix B: Country Reports.....	22
Appendix C: Roles & Responsibilities.....	88
Appendix D: Media Coverage.....	89
Appendix E: Website & Social Media.....	91
Appendix F: Terms of Reference.....	94

USA



# Introduction

As we complete Mission X 2014 (MX14) and come to the end of Phase 1 of the multi-year Mission X international fitness campaign, the rise of childhood obesity has leveled off in the United States. This is confirmed by data collected in 2011-2012. The recent article by Ogden in JAMA describes the finding from the 2011-2012 survey of the prevalence of overweight and obesity per age groups from less than two years old to more than 60 years of age in the United States. There was a slight decrease in obesity in the age group of two through five year-olds. In all other age groups no improvements were reported and the overall prevalence of obesity remains high.

To put the problem in perspective, the prevalence of obesity was approximately four-and-half percent in the 1960s and early 1970s in the United States. By the end of the 1970s the percent rise in prevalence of childhood obesity increased steadily in the first decade of the 21st-century. A similar trend was seen worldwide starting in the late 1970s and 80s all the way in the 1990s. Today, the global prevalence of childhood obesity is approximately 20 to 30 percent. Slight improvements are beginning to be seen but continued monitoring and implementation of intervention programs are required.

Three intervention strategies appear to be most useful when attempting to prevent or slow the progression of childhood obesity. They include decreasing sedentary time

(ST), increasing daily physical activity (PA), and modifications to the diet. Recent studies have attempted to determine if any of these behaviors are more important than the others, as well as if any synergy in improvement can be achieved when two or more of the behavior modifications were combined. Findings are mixed but reducing sedentary time in front of the television or computer screen, increased daily activity (one hour day) and reduction in high caloric fast foods with an increase in fresh fruits and vegetables was of value. The ideal intervention plan is dependent upon a broad range of community and socioeconomic factors. No one approach appears to help resolve the overall issue of obesity in every situation.

It is now known that interventions may not always reduce total body fat but they have been shown to help reduce systolic blood pressure by 2 mm Hg and diastolic blood pressure by 1.5 mm Hg with implementation of a combined intervention plan of increased physical activity and diet modification. In a study by Liao et al it was found that focused efforts to reduce ST had a significant effect on body mass index. Also, Lee, et al presented strong evidence that physical inactivity increases worldwide premature morbidity by three through 10 percent and premature deaths by nine percent. It was observed that if physical inactivity was completely resolved that it would increase life expectancy by nearly one year.



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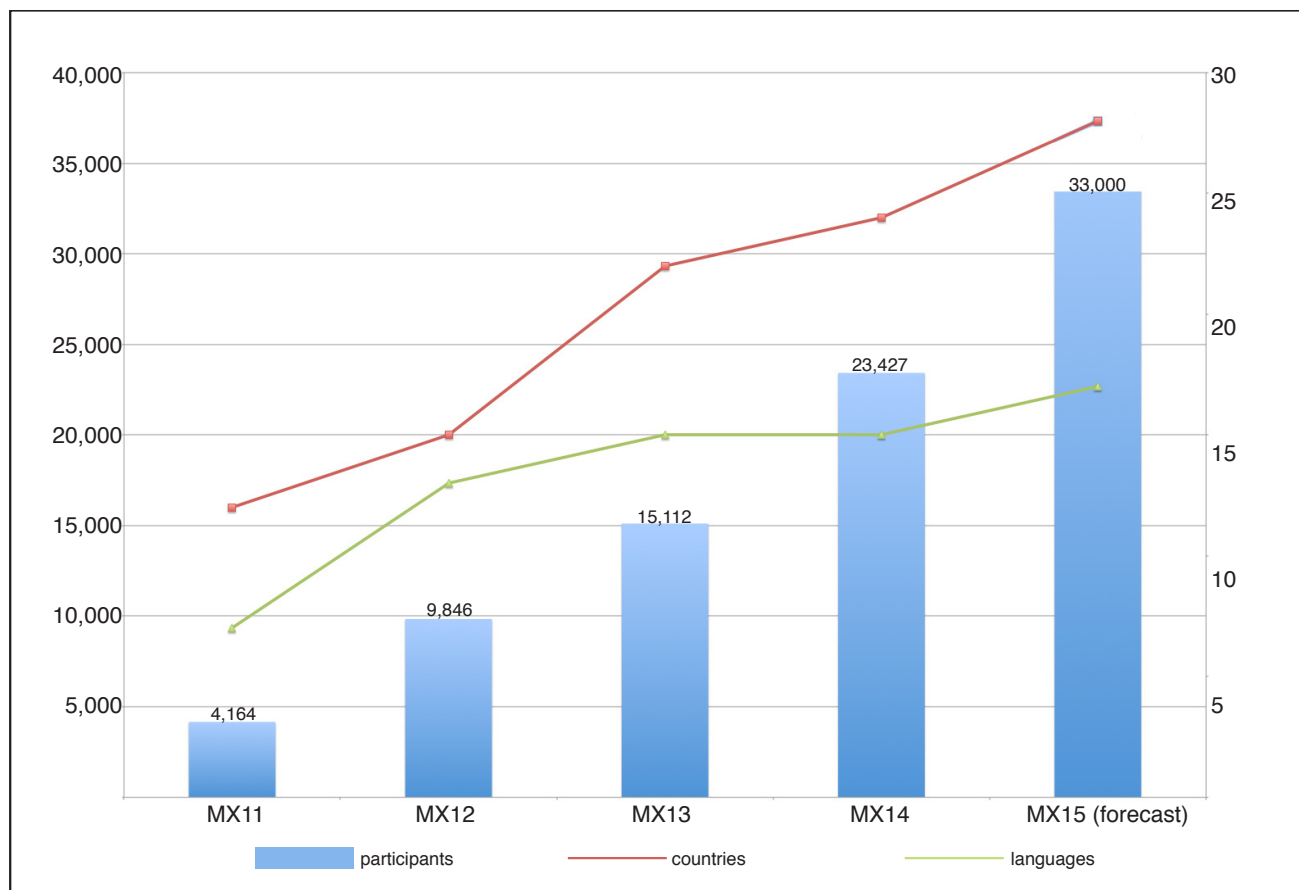
COLOMBIA



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## MISSION X GROWTH TRENDS



MX14 once again, with support and resources from NASA and partner space agencies European Space Agency (ESA), Agenzia Spaziale Italiana (ASI), Centre National d'Etudes Spatiales (CNES), German Aerospace Center (DLR), Japanese Aerospace Exploration Agency (JAXA), UK Space Agency and Netherlands Space Office (NSO) has reached further around the globe with nearly 23,000 participants and more than 560 teams in 24 countries with more than 1,300 adults supporting the implementation of the challenge. This is a fitting conclusion to the first phase of the international fitness challenge and sets the stage for Phase 2 MX multi-year campaign. Appendix B contains

19 of 24 country reports that briefly summarize individual country experiences and provide a final tally on the numbers of participants, adults, teams and cities involved. Some of these reports reflect very extensive analysis of outcomes. This demonstrates how some groups are using the international fitness challenge to address unique needs in their home countries. The space agencies and MX leadership appreciate these valuable assessments. It helps steward the program and enhance the model to be more effective in meeting the goal of increasing daily physical activity and improving awareness of living a healthy lifestyle while learning about human space exploration.

# Mission X Current Status

Country	Children	Teams	Adults	Sites	Lead Space Agency	Partners
Australia*	848	15	30	11		Victorian Space Science Education Centre (VSSEC)
Austria	384	20	40	8	ESA ALR/FFG	RUAG Austrian Planetarium Society GOP Klanagenfurt in Carinthia Schwag Tirol Judenburg in Styria Kongsleiter in Shzburg
Belgium	93	5	15	4	ESA	Euro Space Center
Chile*	115	4	5	1		Universidad de Talca
Colombia	1,543	72	294	16	CCE	Fundacion Ciudad Horizon 2050
Czech Republic	367	23	16	6	ESA CSO	
Denmark	251	10	12	6	ESA	Tycho Brahe Planetarium Danish Ministry for Innovation, Education and Science
Finland	448	25	42	11	ESA	ESERO Nordic-Norway
France	1,093	448	57	32	CNES CNES Guyana	Cite del' espace Cite des sciences et de l'industrie Guyana Space Museum
Germany	144	6	14	6	DLR	DLR School Lab, Cologne German School of El Paso
Italy	1,313	51	91	17	ASI	ALTEC Plantarium of Milan
Japan	1,775	14	100	9	JAXA	Tsukuba Young Astronauts Club Tsukuba Board of Education Kawagoe Board of Education
Netherlands	784	26	33	18	ESA NSO	Sterrenlab Space Expo UNAWÉ
Norway	252	10	16	6	ESA	Nordic European Space Education Resource Office Norwegian Centre for Space-related Education
Puerto Rico	USA	USA	USA	USA	NASA	
Portugal	495	17	40	11	ESA	Ciencia Viva Agencia Nacional Para a Cultura Cientifica e Techologica
Republic of Ireland	N/A	N/A	N/A	N/A	ESA	Blackrock Castle Observatory
Russia	75	7	3	4		
Slovenia*	13	1	4	1	ESA	Slovenian Centre of Excellence for Space Sciences and Technologies (SPACE-SI)
Spain	729	33	28	12		Universidad Politecnica de Madrid ImFINE research group Astronomy Center from Huesca (ESPACIO 0.42) European Space Astronomy Center (ESAC)



# Mission X Current Status

Sweden	590	26	49	12	ESA	Teknikens Hus in Lulea Nordic ESERO Swedish National Space Board
Switzerland	N/A	N/A	N/A	N/A	ESA	Museum BL
United Kingdom (England, Wales, Northern Ireland, Scotland)	9,059	183	400	183	ESA UK Space Agency	Venture Thinking Royal Observatory Greenwich ESERO-UK Royal Aeronautical Society British Interplanetary Society UKSEDS The Parliamentary Space Committee QinetiQ University of Cambridge University of Strathclyde
USA (including PR)	3,056	42	75	26	NASA	SHAPE America The Resource Center
24	23,427	638	1,364	400	11	53

\* Denotes first year in Mission X program

During MX14, three new countries (Australia, Chile and Slovenia) joined the fourth international fitness challenge. As in the past, first-time participants brought unique circumstances to the project. For example, Chile is located in the southern hemisphere where the school year runs at a different time than in the United States and Europe. Therefore, the January through March challenge period was not feasible.

During the 2014 challenge, MX assisted Chile in identifying an appropriate time to host activities. This guidance and support led to a stronger partnership and an off-schedule plan for October through December. These may be replicated for other new participants in the southern hemisphere.

Whether it's adding updates to the blog or activities to the Facebook page and website, it is anticipated other countries will be joining Chili to keep Astro Charlie moving across the planet and to the moon. Every country is unique. Efforts continue to streamline the program so that it's more efficient. However, exceptions are made.

In the case of Australia, another new MX14 country, it was determined they could join the main challenge a little late in February without issues. Colombia had done so in previous years. In these cases, MX works to keep the website active at times other than when Astro Charlie traveling to the moon so teams can communicate during early and late challenges. In all these exceptions, the goal is to find ways to have spaceflight activities and events for children during the October-December timeframe while others are preparing for the standard challenge, and in the March through June period where others are performing closing events. The project continues to evolve to help keep children focused.

Slovenia is another example of how a new country to the program addressed first-time challenges. Because materials were not immediately available in Slovenia's native language, the country decided to host only one school for their first year and invest appropriate time into translating all the necessary materials. Because of their efforts, they are positioned for growth. MX looks forward to working with Slovenia in 2015 as they expand their involvement and continue their success.

# Mission X Current Status

Other interesting findings from MX14 included Austria and Colombia. These two countries worked extensively to ensure that all their teachers were fully trained and all the sites completed their activities. Additionally, they required their sites to provide documentation of their efforts by submitting videos and pictures, which demonstrated implementation. These two countries were the top blogging countries of MX. Using the blog as a method of communication excited the children but also shared with the entire world what countries were doing. Country leads also had much better documentation on which sites were performing and who needed further assistance. This level of participation (training and documentation process) is excellent but is not required.

While the overall MX program is quite effective due to its affiliated partner countries, the fitness challenge is still in its infancy. MX prefers to continue taking a more relaxed approach. This allows countries the flexibility to customize materials and activities to meet their own unique needs, which is fueling successful programs across the globe. An example of a country, which took a more generalized approach, was the United Kingdom (UK). UK has sites in England, Wales, Ireland and Scotland making it the largest country team worldwide. UK did not require its sites to use of all the activities. Variation was simply the only way they could meet all of the needs in the various locations. Flexibility and the use of different techniques to meet all of the needs of the very different locations made the UK successful. UK focused on communicating to their government and ministries of health. They gave a special presentation to the House of Commons. The UK Space Agency

was highly instrumental in the success of the MX project in Great Britain. Looking ahead, the UK will have ESA Astronaut Tim Peake who is scheduled to visit the International Space Station (ISS) in 2016. They are just getting warmed up and are projected to grow significantly larger in MX15. Their focus is directed toward evaluating the educators and schools' leadership. Their country report provides specific details highlighting these types of assessments about what is working and what needs further attention.

The MX14 international fitness challenge connected the children around the world to 30 astronauts who shared the importance of staying fit in both body and mind. This year's list of astronauts who participated in appearances and/or provided support to a MX activity or product support to a MX activity or product included: Mike Barratt (MX13 ambassador), Cady Coleman, Samantha Cristoforetti (MX15 ambassador), Franke De Winne, Mike Finke, Satoski Furukawa, Richard Garriott, Mike Hopkins, Andre Kuipers (MX14 ambassador), Andreas Mogensen (MX 16 ambassador), Kate Rubins, Steven Swanson, Franz Viehbock, and Koichi Wakata.

As Christmas 2013 was approaching, we gathered together a group of astronauts to do their version of the 12 Days of Astronaut Fitness (YouTube: <https://www.youtube.com/watch?v+mbA2j3Uwlhc&feature=youtu.be>): Serena Aunon, Tracy Caldwell, Cady Coleman, Jeanette Epps, Drew Feutsal, Mike Foreman, Jeremy Hansen, Kjell Lindgren, Dottie Metcalf-Lindenburger, David Saint-Jacques, Mark Vande Hei, Shannon Walker, Peggy Whitson and Reid Wiseman.





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# MX International Closing Events

Overall, the annual meetings and events were all successful. This face-to-face meeting of the Mission X Working Group (MXWG F2F) in St. Hubert, Belgium at the Euro Space Center, June 16-23, 2014 was attended by 10 countries with supporting presentation charts from an additional four countries. A change in the format and duration of the F2F meeting was approved at the meeting and will be implemented beginning in 2015.

The annual MXWG meeting for 2015 will be held in Rome, Italy in June. The annual meeting in 2016 is scheduled to be in Vienna, Austria. The MXWG 2014 session agreed upon a set of recommendations including MX website access to team data, improved registration process, changes in the approach and methods on metrics, and recommendation for new science modules for upcoming challenges developed by the partners.

The country presentations reaffirmed that Mission X international fitness challenge provides significant health services to the countries participating and overwhelming approval and appreciation for access to the trainlikeanas-

tronaut.org (Mission X) website. It was agreed upon that Italian Astronaut Samantha Cristoforetti would be the 2015 Mission X astronaut ambassador and that UK Astronaut Tim Peake and Italian Astronaut Andreas Mogensen will be the Mission X astronaut ambassadors in 2016.

The group felt that the annual face-to-face meeting was essential to maintaining effective and sustained communications across the partners. It is believed that these sessions provided the necessary time to express concerns and questions unique to a specific country's needs, discuss effective resolutions to concerns or clarifications and allowed for sufficient time for each to show how they can contribute to the overall program.

This year MX hosted students from Great Britain, Italy, Austria and Belgium for the international closing event. Cost was the major factor why more countries did not bring students. The Euro Space Center provided a wide range of space flight activities for school children and a highly trained set of educators to lead each of the activities.



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The Euro Space Center is a centralized location in Europe, offering schools an in-depth look into the global space flight efforts and experience. Based on individual conversations with both parents and children alike, they truly enjoyed their experience over the two days. One of the most significant experiences the children had was working with children from other countries that did not speak their language. The activities also emphasized teamwork in each of the mission objectives and served as a theme to wrap up the Mission X 2014 challenge year.

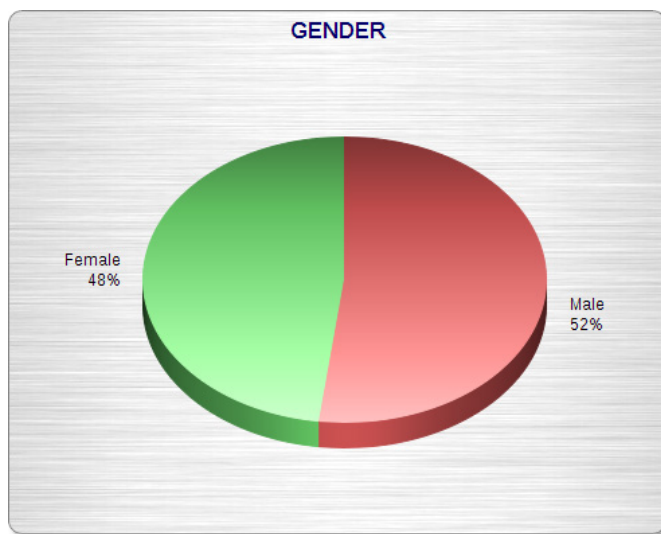
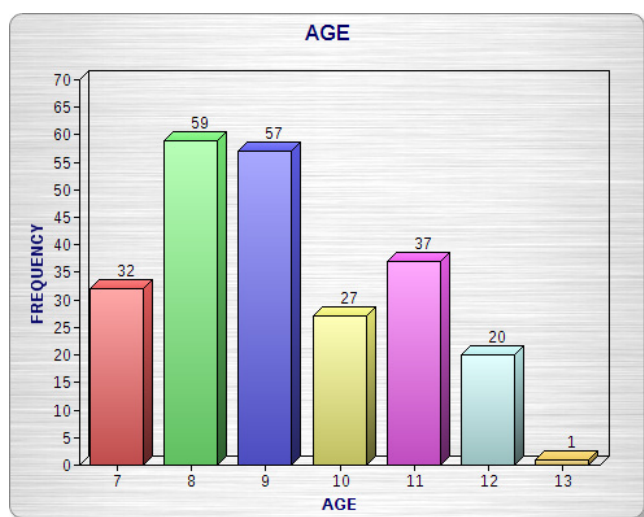
The NASA Langley, NASA Edge team were on hand to document all the experiences right up to the final event where the students launched hand-made rockets. NASA Edge had the opportunity to work with a sub set of the students in depth as they went through the activities. The outcome was the Mission X 2014 international closing video that can be found on the the Mission X website along with a set of trailers and highlight clips from the program.

# MX14 Survey Assessment

During the Mission X 2014 Challenge, Team USA was made up of 3,056 participants in 14 sites across seven states and Puerto Rico. As in years past, a small handful of those sites chose to take the time to complete another student survey in their busy school year. MX expects this to always be the case and, therefore, was grateful for the subset that the United States team provided.

The surveys continue to be a pre and post set of questions that are broken into three main sections: 1) demographics, 2) questions on likes and interests, and 3) unit questions of select points on health and fitness, in which we are seeking to find if the materials communicated the importance of living a healthy lifestyle to the students.

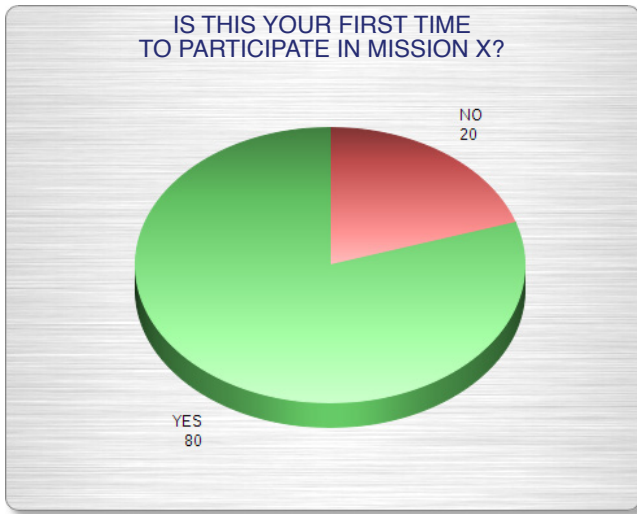
Overall, we received 886 pre- or post-surveys from three sites: St. Louis, Mo.; Plant City, Fl.; and Houston, Texas. Of the 886 surveys, it was determined that there were 233 matched pre- and post-surveys, or a total of 466 usable submissions. The remaining 420 unmatched, or singular surveys, were not usable for further analysis. The average age of the MX14 survey population was 16 years of age with a range from three to 68. One site is composed of adults with unique needs, with the remaining 12 sites being composed of students with an average age of eight.



The 653 participants that provided MX14 survey assessments represent 21 percent of the total MX14 Team USA cohort of 3,056. The 233 matched survey participants represent 7.6 percent of the total cohort. This sample size is similar to the number of surveys and participants in past challenges. In many cases we found that sites were willing to do the pre-survey as the challenge approached, but with the school year testing period beginning, they were not able to find time to complete the post-survey.

Within the matched survey cohort we had an age range from 7 to 13 with the median age being 8.5 years old and the mean age being 10 years old. This age group is in-line with the targeted population for this material. The gender was nearly equal with the matched group having 52 percent boys and 48 percent girls. The matched cohort appears to be a highly motivated group seeking to live a healthy lifestyle even before they participated in the MX14 international fitness challenge. The surveys indicate that 41 percent of them participate in sports and play on the playground every day. However, it is important to note that there is still significant improvement that can be made in the cohort since nearly 60 percent do not meet the national guideline for children to be active for at least one hour each day. The

# MX14 Survey Assessment

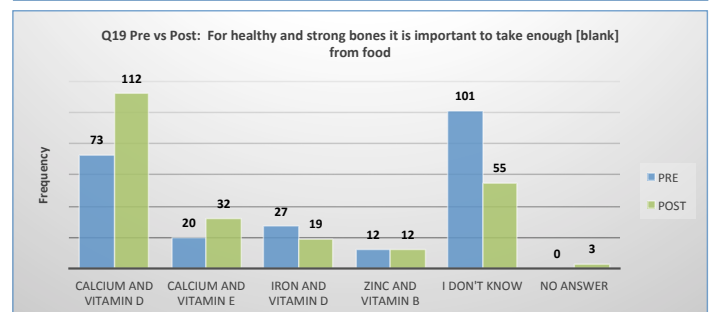
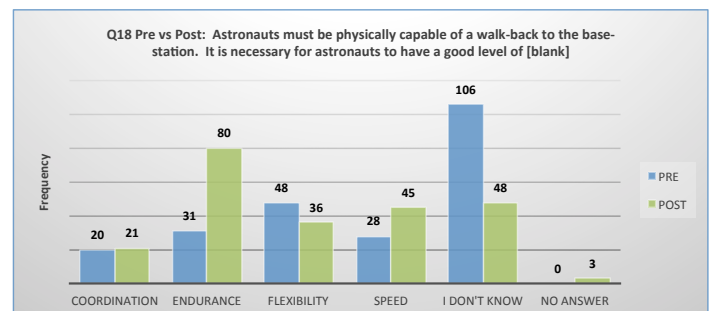
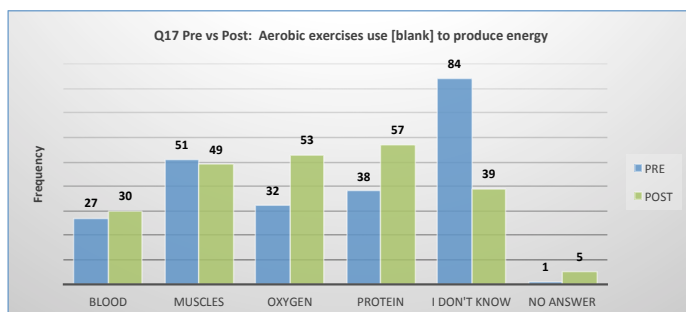


matched cohort also had positive responses to eating fruits (51 percent) and vegetables (29 percent) every day. As with the daily activity, the cohort had sufficient room to improve in their healthy eating. It is interesting to note the matched survey cohort indicated that 26 percent of them eat greasy food only twice per week or less. In line with the question on daily physical activity, the matched survey cohort indicated that 50 percent spent less than two hours daily on their computers or watching television.

The group also indicated that approximately 50 percent were interested in space flight and working at NASA which is a positive factor in the overall United States concern re-

garding children looking to proceed into the science, technology, engineering and mathematics (STEM) professions. In regard to changes in interests, the survey results did not indicate any major shifts in daily physical activity and eating habits. Something caused a reporting of 22 percent with no answer on sugary drinks, eating breakfast, consumption of greasy foods, and time spent watching TV or working on computers. This 22 percent with no answers also showed up on post responses for interest in space flight and NASA.

For the unit questions, in all cases there was a delta increase in correct answers. The delta increased ranged from nine to 22 percent or an average increase in correct answers of 16.6 percent. The lowest increase was on question number 17 about aerobic exercise and the highest increase of 22 percent was on questions 11 on bone loss and 15 on improving core muscle strength. In regards to question 17, the question ask what aerobic exercise uses to produce energy. The correct answer was “oxygen”.





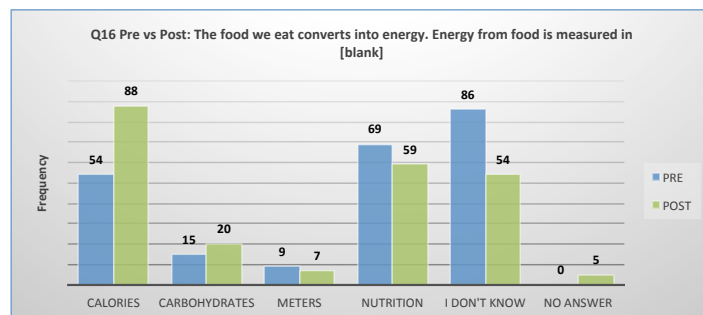
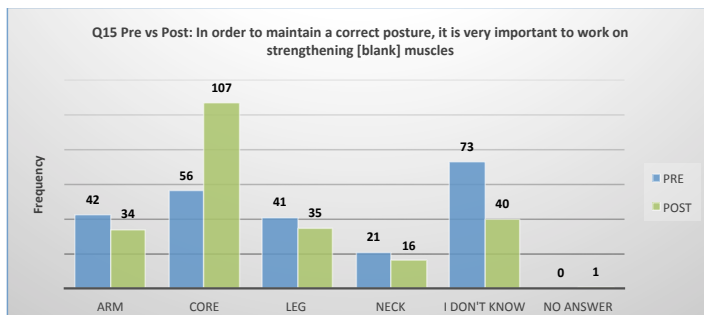
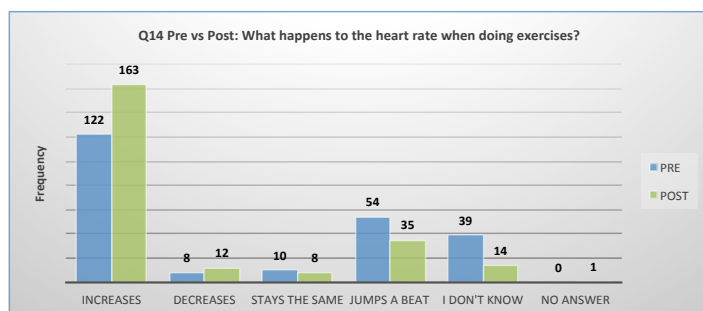
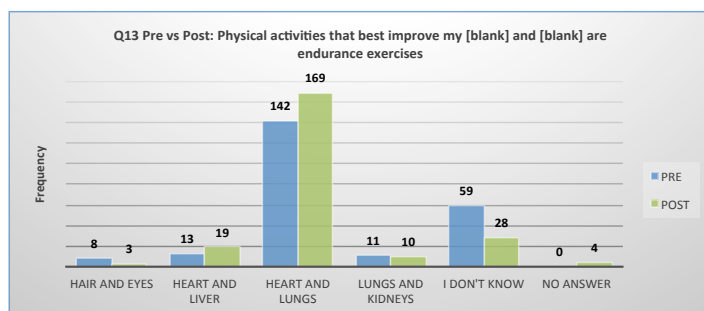
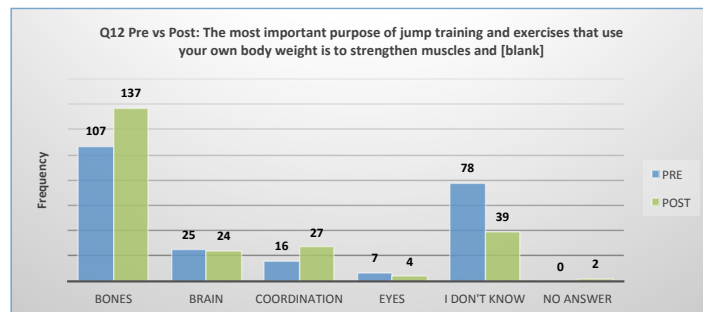
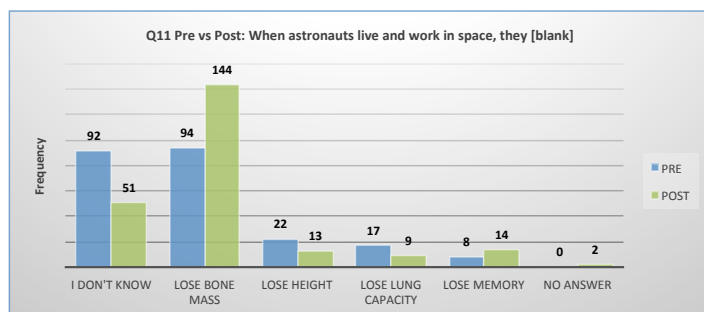
# MX<sub>14</sub> Survey Assessment

During the pre-survey 32 individuals selected oxygen and on the post-test survey that had gone up to 53. Another answer that saw a sizeable increase was “protein” where 38 selected it on the pre survey and 57 selected it on the post survey. The concept of aerobic exercise, oxygen and protein are considered to be fairly advanced concepts for this age group so it is believed we saw a good response from the learning experience for this topic. The number of individuals that selected “I Don’t Know” foil went down from 84 to 39 (pre vs post survey response).

In all cases there was a sizable decline in the number of “I Don’t Know” responses with a corresponding rise in the correct response. It is important to highlight that in some cases where there were still incorrect answers in the four foils, indicating that the questions and answers were possibly tricky for this age group. Two examples of this we

believe are question 18 about what an astronaut needs to walk back to base (endurance vs. speed) and question 19 that is asking what is needed for healthy bones (Calcium + Vitamin D or Calcium + Vitamin E). These unit question results suggest reasonable improvement in learning; however, we believe there is also more room to grow.

Further improvement can come from the project focusing more attention on the teachers and adult leadership to help increase their knowledge about the activities and their willingness to improve the content taught in their classrooms. Survey design can be improved to more appropriately target the age range and implementation can be improved to lessen the difficulty of taking the surveys. Team USA is pleased to see a positive net change in unit questions for the 2014 Mission X Challenge.





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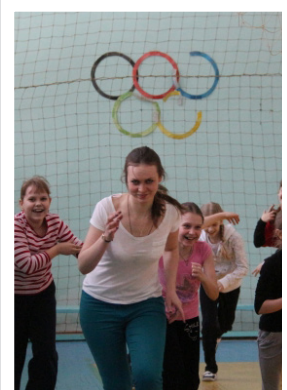
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RUSSIA



# MX<sub>14</sub> Lessons Learned

Consensus taken from the country reports was that every team struggled with limited resources, and they desired new physical activities and classroom content associated with health and fitness. Astronaut appearances and MX-unique and space agency giveaways were greatly appreciated. The most favorite items called out were the MX t-shirts and the MX puzzle, which were supplied by partner agencies. Both were great giveaways helping to promote enthusiasm for the challenge and further team unity. All teams loved to follow Astro Charlie as he trekked toward the moon and to have him in photographs and videos they

produced during the challenge. Once again, MX continues to struggle with a point system that works for everyone, but so far we have not found a universal solution. Other areas of difficulty were registration and the housing of information, which was important to the team leads and the project. In MX<sub>15</sub>, we will implement a new approach and hope to make progress on the registration issue. Since we are moving into the Phase 2 of the MX multi-year program, we decided to give the MX website a facelift with some new backgrounds, new arrangement of the boxes on the front page, addition of a few new activities and more.



PUERTO RICO



USA



PORTUGAL

RUSSIA



SPAIN



NETHERLANDS

NORWAY





# MX14 Project Enhancements

Other points of interest highlighted in the reports included an expansion of Team Italy into southern Italy and the expansion of Team Portugal into the Azores. Additionally, several countries are beginning to team with universities and are bringing in engineering and science experts to share their experiences with the children as avenues to pursue as they work on their coursework throughout the year. Team UK had many school assessments documented in their report and Team Colombia provided extensive documentation on the team makeup and locations of the sites

around the country. In the United States, we found that the monthly newsletter to the sites was extremely helpful in keeping the groups all connected. Team USA continued to work closely with Team Puerto Rico and most recently with a segment of Team Germany located in El Paso, Texas at the German School. With a preponderance of activities surrounding Astronaut Mike Hopkins, we had the opportunity to hold events preflight, continue to visit with Hopkins while he was in orbit using the Train Like an Astronaut Facebook page and much more.



PORTUGAL



JAPAN



SPAIN



NORWAY



NORWAY



ITALY

# Looking Forward to MX15

MX15 is anticipated to start strong! This includes the addition of new countries as we strive to be in 29 countries by 2017, expansion of existing countries and events planned with astronauts pre, in, and post flight. The first order of business for MX15 will be getting the website refreshed and ready, completing and translating new content in all the MX languages, expanding an educational team working with new ideas throughout the year, and developing new ideas regarding event assessments. One idea that was embraced was expanding the call for documentation using short videos, pictures and words via blogs. In the United States, we will team with the University of Buffalo at State University of New York Department of Epidemiology and Environmental Health regarding program evaluation through a Space Act Agreement.

Other near-term efforts planned are a renovation of the auto registration process and the registration form to better document country leaders and expansion of information on the sites participating in the challenge. This will be extremely helpful to our country team leads and will help improve

communication both within a country as well as between countries. It will also provide the MX project staff with more accurate numbers on the total participation for each challenge. We are starting to evaluate options for involving countries that are unable to participate during the period January through March challenge timeframe and to investigate methods for involving a new venue with the Family-Focused Train Like an Astronaut (TLA) environment. It is time for our participants to take home the excitement of MX to the rest of their family and get those family members up and moving. Also, new for MX multi-year campaign phase two (2015–2017) are new e-badges, new levels of activities including circuit training, more classroom science activities, and improvements to how all of the points from these activities keep Astro Charlie moving to the moon and back to Earth. Last but not least, we have the opportunity to start highlighting both MX15 astronaut ambassadors, Samantha Cristoforetti, and MX16 astronaut ambassadors, Tim Peake and Andreas Mogensen.

Let The Challenge Continue!



FRANCE



FINLAND



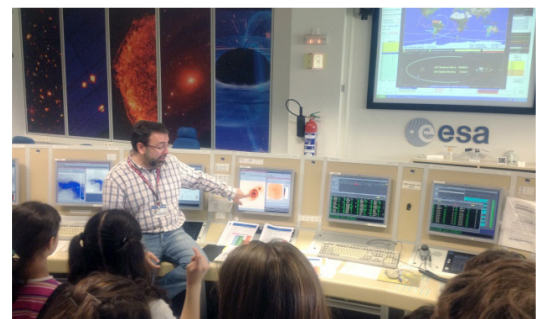
SOUTH KOREA



COLOMBIA



SOUTH KOREA



SPAIN



# Appendix A: Resource List

1. Ogen C, Carroll MD, Flegal K. Prevalence of childhood and adult obesity in the United States, 2011 – 2012. *JAMA* 2014;311(8):806-814.
2. Wang Y, Beydoun MA. The obesity epidemic in the United States – gender, age, socioeconomic, racial/ethnic, and geographic characteristics: a systematic review and meta-regression analysis. *Epidemiol Rev* 2007;29:6-28.
3. May AL, Freedman D, Sherry B, et.al. Obesity – United States, 1999 – 2010. *MMWR* 2013;62(3):120-128.
4. Wang Y, Lobstein. Worldwide trends in childhood overweight and obesity. *Internat J Pedia Obesity* 2006;1:11-25.
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7. Liao Y, Liao J, Durland CP, et.al. Which type of sedentary behavior intervention is more effective at reducing body mass index in children? A meta-analytic review. *Obesity Reviews* 2014;15:159-168.
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9. Iannotti RJ, Wang J. Trends in physical activity, sedentary behavior, diet, and BMI among US adolescents, 2001-2009. *Pediatrics* 2013;132:606-614.
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# Appendix B: Country Reports



## Australia

848

Students

30

Teachers

15  
Teams

11

Cities/Regions

With the formal end of Mission X 2014, it's a great time to reflect on the fun, knowledge and learning the Australian participants of Mission X 2014 have enjoyed.

The Astronaut Q&A sessions have occurred and some of the forwarded Australian questions were put to a panel of Astronaut, Scientist and Doctor. See the video link at the end of this newsletter.

Each participating school or organisation will soon receive the closeout material supplied from NASA (one large flag, mini flags and stickers per participant) and it's great to see the Australian flag featured on there for the first time - a testament to your enthusiasm to be included in and run the program. The Victorian Space Science Education Centre (VSSEC) has provided advice, assistance and materials to the schools running Mission X 2014.

"VSSEC educators visited over 550 Victorian students

at their schools. Most students were in grades 5 & 6 but at Tallarook the entire school took part, even the Preps. Some of the schools visited VSSEC for a day of dedicated astronaut training. We took them through astronaut assessment, a teamwork jigsaw puzzle construction exercise and worked through an exploration of the Earth's location in the universe. They tested their hand and finger strength, measured their heart rate, blood pressure, height, weight and eyesight. They worked out their complete address, going from their house number in their street to identifying the super-cluster of galaxies which contains the Solar System. VSSEC was pleased to be able to add to the experiences of students taking part in the Mission X program."

- Ian Christie, Curriculum Developer, VSSEC

The VSSEC provides many other engaging science education programs, events and resources to teachers and students. Please visit <http://www.vssec.vic.edu.au> for more information.







384 Students

40 Adults

20 Teams

8 Cities/Regions

### Short Summary:

The project “Mission X – train like an astronaut” was run in Austria for the fourth time. Again the Austrian Planetarium Society (GÖP) was responsible for running the program. The planetaria from Klagenfurt in Carinthia, Schwaz in Tirol, Judenburg in Styria and Königsleiten in Salzburg helped the Mission X team in Vienna to manage the whole program. The project started in September 2013 with an extended information campaign for schools all over Austria. The Austrian Mission X website ([www.mission-x.at](http://www.mission-x.at)) was again used for the application process. Three teacher trainings have been arranged in Vienna, Schwaz and Klagenfurt in January 2014. During the mission 20 teams from 8 different regions/cities participated. Mid of January the teams started their training and were supervised via Web and mail correspondence. After the training period from January to March 2014 the Austrian final event took place at the “Technisches Museum Wien” on 24 April 2014. The teams presented their final reports, kids from different teams had to tackle a “Joint Mission” on stage and finally met Austrian MIR astronaut Franz Viehböck. This year the Austrian petroleum company OMV sponsored the training T-shirts for all the kids and teachers.

### Approach Taken:

Mission X was implemented and organized by the Austrian Planetarium Society (GÖP) and Peter Habison as head of the project. ALR/FFG as the Austrian Space Office and RUAG Space supported the project. OMV sponsored 450 Mission X training T-shirts.

### Major Points or Important Highlights:

- Collecting data and mail addresses of 1700 schools all over Austria.
- Information campaign for schools in Austria together with Austrian planetaria in autumn.
- Three Kick off meetings with teachers in Vienna, Schwaz and Klagenfurt in January 2014.
- Development of an “Advanced Evaluation System” in order to find fair and true winners.
- Closing event on 24 April 2014 at “Technisches Museum Wien” with Astronaut Franz Viehböck.

### Lessons Learned or Areas that Need Attention:

- Auto registration was problematic at the beginning and should be improved.
- Due to financial restrictions and more teams participating, individual visits to schools have not been possible. This restricted our support to the schools a little bit.
- Five schools in the countryside dropped off during the mission.

### Closing Events Participation:

Austrian Closing Event: On 24 April 2014 the closing event for Austrian took place at the “Technisches Museum Wien”. Two rounds of the final “Mission X Oscar Ceremony” were performed with 280 kids and 36 teachers present. Again Austrian MIR astronaut Franz Viehböck had fun with the kids, talked with them and presented the certificates to the teams.

International Closing Event: Peter Habison as MX project manager in Austria will participate in ICE/Belgium from 19-22 June 2014.

**Participation in Pre-surveys:** No

**Participation in Post-surveys:** No

### Recommendation for Future Mission X events:

Again more kids from more countries should be involved. Involve more role models: e.g. in the field of nutrition, special cooks etc. Rethink the ICE (International Closing Event) concept from 2015 onwards.

### Support for future MX Events:

Yes, a participation for 2015 is planned.

### Internet sites/Press Releases:

- Austrian Mission X website: [www.mission-x.at](http://www.mission-x.at)
- APA Press release on 25 April 2014 concerning the final event.
- APA picture gallery final event in Austria: <http://www.apa-fotoservice.at/galerie/5327>
- Article in the “Niederösterreichische Nachrichten” Wiener Neustadt on 28 April 2014.
- 467 Austrian postings at MX website!!
- Several Facebook and Twitter postings by Peter Habison.

Dr. Peter Habison

Head of Mission X project management for Austria

Austrian Planetarium Society

Some impression from the Final Event at Technisches Museum Wien at 24 April 2014







93 Students

15 Adults

5 Teams

4 Cities/Regions

### Approach Taken:

The Euro Space Center is responsible for organizing the competition in Belgium. In fact, we are the pedagogical reference for Space in Belgium. As we receive dozens of schools for space classes, we send out emails regarding the competition to these schools. I also talk to them face-to-face when they come. Even if they show much interest when I speak to them, the tediousness of the competition really discourages them.

I would like to point out that every year, teachers who I know well participate in the competition. I persist, talk to them about it and convince them.

In October, the Euro Space Center is going to take part in a national fair on education and a form presenting MX will be given out to each teacher who comes to the stand. They will thus have the opportunity to register.

Once the schools have enrolled, at the end of November I organize an informative meeting for the teachers participating. Each time, the meeting has been canceled at the last minute because it has been impossible to agree upon a date which is OK for everyone.

### Major Points or Important Highlights:

During the academic year and over the course of the competition, I do not have time to organize a specific event. Each school works at its end and I stay in contact with the teacher responsible, either by email or telephone. I regularly keep up-to-date with goings-on. This is not an easy task as there are serious communication issues. On occasions, I have had to get in touch several times to obtain this

or that information.

### Lessons Learned or Areas that Need Attention:

The difficulties are not directly related to MX, but mainly come from the Belgium school system, which is already overstretched. Teachers do not know what to do as they are asked to take part in all kinds of projects. Teachers are also somewhat demotivated and are not interested in taking part in difficult activities.

### Closing Events Participation:

Yes. Without this, I do not think that any school would participate. There has to be something to attract them. The school with the most points wins a space class offered by the Euro Space Center. The first time, the astronaut Frank De Winne came to give their diploma to the children, the following year it was Michel Tognini and in 2014, the class came, free of charge, to the MX event at the Euro Space Center.

### Participation in Pre-surveys:

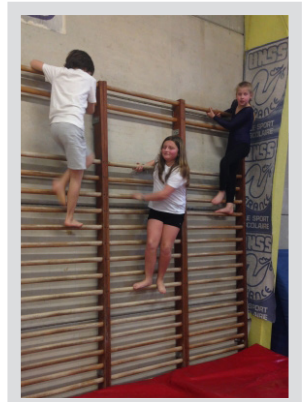
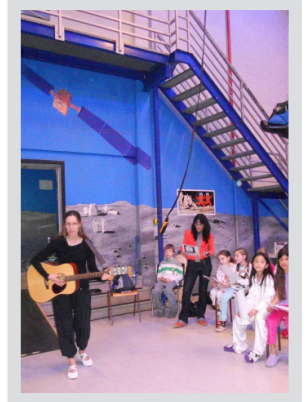
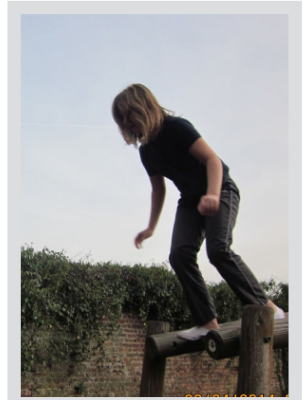
No. It is very difficult as it is to organize the competition given that the schools do not have a lot of time, thus making it impossible to ask more time of them to complete this survey.

### Participation in Post-surveys: No.

### Support for future MX Events:

Yes, of course. However, I do not think that we will have

## Belgium Continued







115  
Students

5  
Adults

4  
Teams

1  
Cities/Regions

### Approach Taken:

In collaboration with the Municipality of Talca and the University of Talca, we invited 4 teachers from schools in the area. These teachers participated in training and received the manual with the activities and a calendar to implement the program.

### Major Points or Important Highlights:

The interest demonstrated by the educational community was expressed during the Inauguration activities (Nov. 21, 2013) and the implementation of the activities, which was extended for approximately 1 month and 15 days by the teachers.

Local media was interested in covering the MX activities as implemented by the schools. Mainly adapting the MX program to the Chilean idiosyncrasy. Motivation for the teachers and the students is sustained by personal encounters and doing activities where they participate with other schools.

Furthermore, to achieve the approval of the local education authorities, the support of the University is essential through the team of coordinators.

Finally, additional time is required to prepare for the onset of the challenge. Therefore, we are considering starting the program a month in advance.

### Lessons Learned or Areas that Need Attention:

Videoconferencing is a great promoting tool, which was used during the Opening Ceremony of Mission X, where the students pledged their commitment.

### Closing Events Participation:

Each school had their own closing event with the participation of a Talca University representative.

### Participation in Pre-surveys:

3 out of 4 schools participated in the survey.

### Participation in Post-surveys:

2 schools participated in the survey.

**Support for future MX Events:**

Chile will participate in Mission X 2015

**Media Coverage:**

<http://www.otalca.cl/link.cgi/SalaPrensa/RSU/6962>  
<http://www.otalca.cl/link.cgi/SalaPrensa/academia/6977>  
<http://www.exploramaule.org/novedades/escolares-maulinosparticiparanenprogramaeducativodenasa>  
[https://www.facebook.com/otalca/posts/618417334881450?stream\\_ref=5](https://www.facebook.com/otalca/posts/618417334881450?stream_ref=5)  
[http://mauleciencia.cl/?page\\_id=18](http://mauleciencia.cl/?page_id=18)  
<http://mauleciencia.cl/?p=56>  
[http://lodecubillos.blogspot.com/2013/11/jovenes-chile-](http://lodecubillos.blogspot.com/2013/11/jovenes-chile-nos-juegan-entrenar-como.html)

[nos-juegan-entrenar-como.html](http://radioallen.cl/2013/talca-mision-x-escolares-maulinos-participaran-en-programa-educativo-de-nasa/)  
<http://radioallen.cl/2013/talca-mision-x-escolares-maulinos-participaran-en-programa-educativo-de-nasa/>  
<http://www.cronicacurico.com/programa-nasa-jovenes-chilenos-juegan-a-entrenar-como-astronautas>  
<http://www.eduglobal.cl/2013/11/26/escolares-chilenos-entrenan-como-astronautas-de-la-nasa/>  
<http://www.24horas.cl/regiones/maule/lanz-en-talca-pionero-programa-de-la-nasa-para-estudiantes-946287>  
<http://www.youtube.com/watch?v=OoyPH9xCk2Q>  
[http://issuu.com/diarioellector/docs/jueves\\_21\\_de\\_noviembre\\_2013/10](http://issuu.com/diarioellector/docs/jueves_21_de_noviembre_2013/10)  
<http://lodecubillos.blogspot.com/2013/11/escolares-maulinos-participaran-en.html>





1543  
Students

72  
Teams

294 Adults

16 Cities/Regions



## Participation:

	2013	2014
Teams (End/Start)	20/24	72 / 90
Children (End/Start)	512/761	1543/1617
Adults	93	294
Coordinators	20	72
Other Teachers	39	118
Parents	20	48
Other Students	14	36
Other Volunteers	N/A	20
Schools	16/20	41/52
Trainers	4	8
Training Sites	1	2
Cities	3	16
Regions	2	6
Uploading Teams	15/20	49/72
Points Uploading Teams	15/20	46/72
First Survey (Sch/Tea/Stu)	8/10/200	593(?)
Second Survey (Sch/Tea/Stu)	9/10/166	266(?)

Fig. 01 Data Summary MX Colombia 2014

## Approach Taken:

The objective of the Foundation with the implementation of Mission X is to reach, with preference, the population with fewer opportunities. The project therefore addresses public schools, locations in rural areas, distant and of difficult accessibility.

The implementation of MX in Colombia is based on the voluntary work and in-kind contributions of the participants. The Foundation CH2050 finances the direction, management and coordination of the project, with no monetary contribution from other entities.

Similarly to the implementation last year, Foundation CH2050 initiated registration of interested schools already in October 2013. As a standard approach each school registers by delivering a "Statement of Intention", committing

to provide sufficient time and resources to the teachers and students for the implementation of the training and the 6 weeks Mission X.

Following that compromise, the school provides the name of the teams and its coordinator. This allows the Foundation to register the teams online and to fill-in and deliver the participation Profile Sheet to NASA.

This year, and in most of the schools, students initiated classes on the 17 January and at that point, the students register for their participation in one or the other previously defined teams. Some other students incorporate somehow late to the teams.

Just before the initiation of the activities, two training campaigns for the teachers were organised. On these occasions, a shower of demonstrations were offered to new teachers in the planetarium as “Inaugural activity” to welcome them to MX and to space activities. Schools on their side, according to their possibilities would implement local Inaugural Events with their team members.

The MX Activities were conducted in a period of 6 weeks from the 3rd of February to 14th of March 2014. Due to the different calendar schools had to deploy an intensive effort to get to full speed and to accomplish all activities (including the execution of the survey) as defined in the international planning. Some schools decided to implement MX all along the school calendar and are still executing MX

activities.

The Closure Event will be conducted in September together with MX 2015 Promotion Activities, This has been decided taking into account particular situations in the national dynamic and also to take advantage of a good opportunity to gather new and expert students and teachers in order to familiarise the new comers with the MX programme.

### Major Points and Important Highlights:

#### *Training:*

CH2050 has constituted a Team of Trainers that have participated in all previous years and known to be capable of transferring the fundamental elements of MX.

The 8 experienced teachers conducted the training campaigns in two different cities: on the 30th and 31st of January in the Planetario Distrital in Bogotá and on the 1st and 2nd of February in Parque Explora in Medellín. In these occasions our trainers imparted detailed guidance on how to proceed for each of the 18 activities. Option to attend by Skype was given to two newcomer leaders not present at any of these sites; this with its inherent complexities. The experienced trainers described their positive experiences and additional values of MX and provided also good number of useful recommendations to the new comers.

#### *Inaugural Event:*





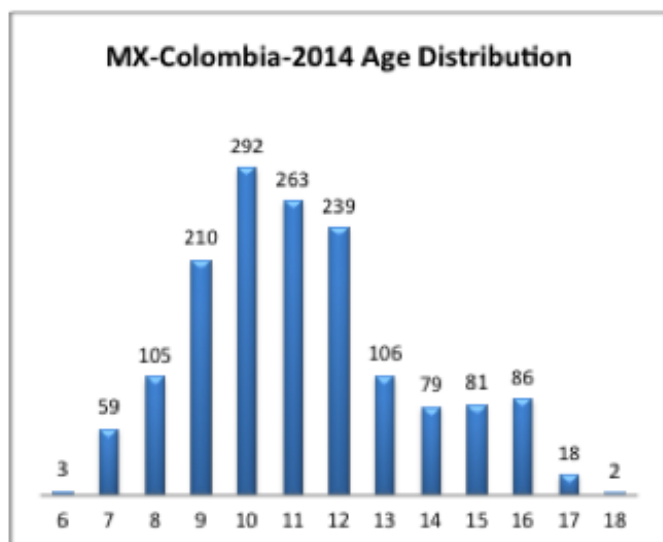


Fig 02. Participant Students by Age

Taking into account the difficulty to finance and transport the students, the just initiated activities at schools and the proximity to the initiation of MX activities it was left to the schools to organise – in the measure of their possibilities – an special event with the students prior to the initiation of the MX activities. In the frame of these activities the teams produced presentation messages to the rest of MX Teams, which was already a competition for them.

On the other side, at the occasion of the training campaigns, shower of demonstrations were offered to new teachers in the planetarium as “Inaugural activities” to welcome them to MX and to space activities.

### Participation in Surveys:

The process of obtaining the authorisation from schools and parents was somehow cumbersome and time consuming for the teachers. The survey in each school was released only upon reception of the school authorisation to proceed.

Initial Survey 593 students, 24 Schools in 9 cities. For the final survey, 266 students, 11 schools in 7 cities participated. Various difficulties have been encounter with the schools for the implementation of the survey e.g. interpre-

tation of the instructions by the teachers and also by the students: the templates leave still much freedom on the data to be entered, which makes that some entered data is not useful or cumbersome to interpret or to correlate initial/ second survey. The survey system needs still to reduce these uncertainties.

Taking into account the short time that our teams have to implement the mission due to the different school calendar Colombia will not participate in the survey for the next opportunity. The efforts will be concentrated in the consolidation of the MX implementation rules themselves to ensure our teams may participate on the same footing with other students on the world.

In what refers to the survey itself, positive comments have been received: accessible for the kids, to the subject and more interesting, an activity that the students were eager to accomplish. With the youngest kids however, the teachers recommend a taint of attractiveness further to the content e.g. drawings, little stories aside the basic text, a kind of decoration of the documents.

Further to the above, reiterated comments have been received recommending to take this opportunity to also explore the kids’ Sensation of Satisfaction or advancement after the Mission has been completed and to check what is

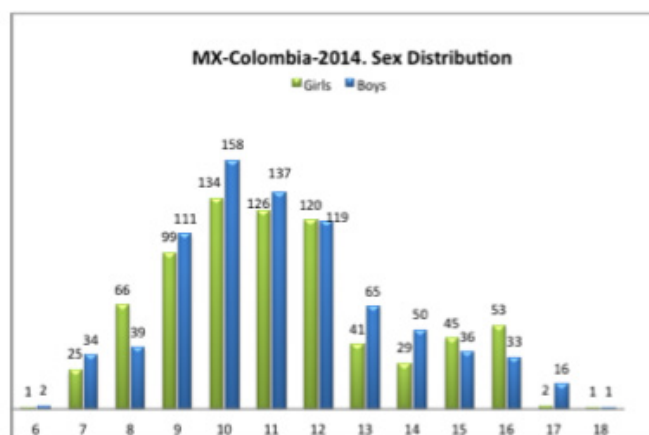


Fig. 03 Girls and Boys by Age

the level of change induced in the kids' perspectives. This would provide a good perception on the effectiveness of MX activities to maintain alive the awaken dream. It has been recommended to include questions like:

- Would you continue training as an astronaut?
- Would you like to be an astronaut, a scientist or an engineer?
- Will you continue caring about yourself as an astronaut (in an scale from 1 to 10 where would you find yourself?).

### Initiation of Activities:

The MX Activities started on the 3rd of February and expanded for a period of 6 weeks up to the 14th of March 2014. This late initiation of activities is driven by the fact that the school year starts on the 17 January. From this point in time, a rush of preparatory activities had to be accomplished with teachers and students. Special attention was dedicated to the new comers, including registration issues, access and usage of the web page and acquisition of the Survey authorisations. A better observation of the international planning was possible this year thanks to the close contact with the team leaders.

Taking advantage of the capabilities provided by the project to make the team experiences known to others through the web page, CH2050 has promoted an efficient use of this tool in motivating the teams to make public their advancements through the uploading of the posts. This provides the following benefits:

- Control the evolution of all the activities
- Closely follow the quality of the implementations of the activities
- Identify the compliance of the objectives of the Mission.
- Promote interaction between the national teams.

The acceptance of the project by the students, teachers, parents and directors of schools in general remains high. Most of the schools have declared their intention to participate in MX-2015.

In what refers to participation, it is important to highlight that new regions have been incorporated in the project this year thanks to the new collaboration with Parque Explora in Medellín, covering the administrative regions of Antioquia, Caldas Risaralda; Colegio Comfenalco in the Tolima region and Fundación Educativa Montelibano in the Cordoba region. This will allow CH2050 to expand the participation on MX-2015 with the support of these organisations.

The increase in participation was also reflected in the participation of parents, students from higher classes and other persons who kindly helped on the organisation and execution of the activities.

It has also been observed that MX exercises a positive influence on elder students, it promotes leadership, integration of these students in productive actions, gives them a sense of purpose and improves the relationship young/old students/teachers/parents, etc. Because of this kind of support some schools have been able to incorporate much more students and teams, where teachers could not cope with many students.

The participation of parents this year has been more notorious. A higher interest has been observed on the implementation of some of the MX activities. The "Reduced Gravity, Low Fat" and "Get onto your Space Cycle" have been the most parent involving activities. On one hand the fatty hamburger has been a shocking experience and on the other some parents joined the bicycle excursions with their kids. In general, parents have been reported to be more concerned with the nutrition and physical evolution of their kids. Again, it is reported that this common subject of discussion improved family members interrelation and family to school contact.

On a similar line we can report that the direction of the schools have been more concerned with the formalisation of elements of Mission X. Cases as the modification of the school dietary rules for the students (more fruit and vegetables on their diet) and a formalisation of MX inaugural acts in which the students were made aware of the responsibility they have in representing their schools in this international



competition.

The participation of a kids with differences have also been reported by some schools e.g. Hyperactivity, Deficit of Attention, Speech Difficulties, Epilepsy, Cognitive and Motility differences. This highlights the capabilities that Mission X provides our teachers and schools to integrate kids in all conditions.

### **Lessons Learned or Areas That Need to be Addressed:**

#### **Instructions for Uploading of Reports and Media**

In view of the number of small but blocking issues identified, it has been necessary to provide descriptive procedural instructions to help the leaders to proceed with their activities.

#### **Safety:**

Due to safety issues it has been concluded that mobility of students should be minimised while still striving to involve the kids in as much scientific activities as possible.

Limited knowledge of foreign languages

Various schools have proposed to incorporate in their language lessons issues related to Mission X to continue with the idea that the project will go on across the school year; foreign language teacher would then work with the students having MX in mind, increasing in this way the motivation for learning this foreign language.

#### **Points Collection Rubric:**

The tables initially proposed have been modified for easier use by the teachers.

Two options have been given to the teachers to build up the points that would have to be uploaded to the web page. A new set of tables has been provided to the leaders in order to facilitate their work. An example of these tables has been provided to NASA as a proposition for simplification of the standard forms and for distribution to all other participants.

Issues with the Web Page

A number of issues have been associated to the implementation of the web page section for Colombia. Document "COMMENTS TO MISSION X WEB SITE [Issue 01 Rev 03]" contains a detailed set of comments including proposed corrections or modifications.

### **Closing Events:**

As mentioned above, the Closing Event in Colombia will be conducted in September together with MX 2015 Promotion Activities. At that occasion trainers, teachers and students will receive as recognition the certificate recognising their participation of contribution to the project.

The objective of the certification is to recognise the efforts placed by the participants and to give the students an earned-souvenir of their positive experience with MX and a motivation to go forward.

In addition, additional awards associated to those competitions organised at national level will be given to the winning participants.

### **Recommendations for Future MX Programs:**

#### ***New Elements for the Survey:***

It is suggested that the survey should in addition include: Personal Improvement. Most of the questions are related to the completed activities however some information about the perception of own satisfaction or feeling that kids experience after completion of the mission would be very interesting. This would give some information about the individual sensation of advancement.

Expectations for the students after Completion of MX-2014 Some information about the change induced in the individual perspectives would also help to perceive the effectiveness of the project to maintain alive the dream that has been awoken during this 6 weeks. Questions like: Would you continue training as an astronaut? What do you think now about being an astronaut or a scientist?. Will you

continue caring about yourself as an astronaut (in an scale from 1 to 10 where would you find yourself?).

### *Control of the Overall MX Project:*

#### Recording and due Assessment of Proposals

In order to take into account all proposals for improvement of the project it is recommended to keep track of all the proposals. Each proposal should be clearly identified (reference, date and originator). Each proposal should be analysed by the working group and the corresponding conclusion recorded with the associated actions.

Closure of these recommendations would then be upon completion of the actions. This would take into account every proposal in an orderly way.

### *Record of Action Items:*

Keeping a record of actions would allow for a clean and controlled evolution of the work. Each action should be numbered, dated, associated to an actionee. The status of these actions should be controlled at each meeting and should be closed upon completion.

### **Conclusion:**

The experience of Mission X this year has shown the increased interest of the schools, the teachers and the students based on the achievement of the purported objec-

tives. Based on the national survey conducted by CH2050, a higher increase in the participation and national coverage is expected for next year.

The increase in the participation for MX-2014 is the result of the alliances CH2050 with other institutions, improving the promotion of the project and the support to the participating schools.

Mission X in Colombia has taken its place as the flag education project related to space sciences due to its applicability to the national context and also to its high social component. Taking into account this outstanding position Foundation CH2050 is presently consolidating all elements of the project with the aim of presenting it to other nations at the next occasion of the American Space Conference, promoting in this way Mission X on the basis of the social benefits experienced in Colombia.

R. LORZA-PITT

DIRECTOR MISSION X IN COLOMBIA PRESIDENT FUNDACION HORIZONTE 2050

J. ABRIL CASTRO

GENERAL MANAGER FUNDACION HORIZONTE 2050





Colombia





# Czech Republic

367  
Students

16 Adults

23  
Teams

6 Cities/Regions

many more schools.

## Approach Taken:

The Mission-X 2014 was organized in the Czech Republic by the Czech Space Office (CSO), Center for Student Activities - Milan Halousek, Jaroslav Urbář and David Novotný (external collaborator)

Project website in Czech: <http://www.czechspace.cz/cs/mise-x-2014>

Czech Mission-X 2014 mascot was the “Krtček” (Little Mole), which in 2011 flew into space together with an American astronaut Andrew Feustel (Endeavour STS-134) - [http://www.dokosmuskrtkem.cz/wordpress/?page\\_id=528](http://www.dokosmuskrtkem.cz/wordpress/?page_id=528)

In most schools involved in the project Mission-X 2014 were given presentations about astronautics by the representative of the CSO Milan Halousek.

## Major Points or Important Highlights:

AstroFitnes team - Team from the elementary school in Přerov made Valentines for astronauts on ISS and a video about their Mission X during the “Base Station Walkback” discipline - <https://www.youtube.com/watch?v=YEnOZgV-IA70>

## Lessons Learned or Areas that Need Attention:

There were no considerable issues.

## Closing Events Participation:

Due to time restraints the closing event was not organized this year. Rewards to all participating teams (patches, diplomas, flags) were delivered at a small presentation by Milan

Halousek, CSO, at the school.

**Participation in Pre-surveys:** No.

**Participation in Post-surveys:** No.

## Recommendation for Future Mission X events:

It would be great if some space themed puzzle with logo for the task Mission-X “Crew Assembly” could be manufactured and distributed to each team.

## Support for Future MX Events:

Definitely, very happily

## Internet Sites/Press Releases:

Czech Space Office website Mission X 2013 - <http://www.czechspace.cz/cs/mise-x-2014>

Vratislavova school website, team “Tučňáci na Marsu” mission reports – <http://www.vratislavova.cz/index.php?p7=t&p5=4.r>.

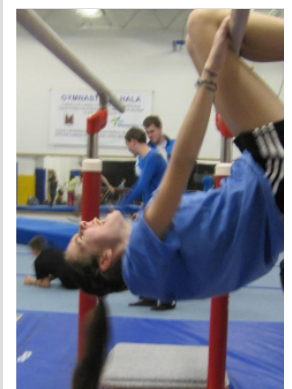
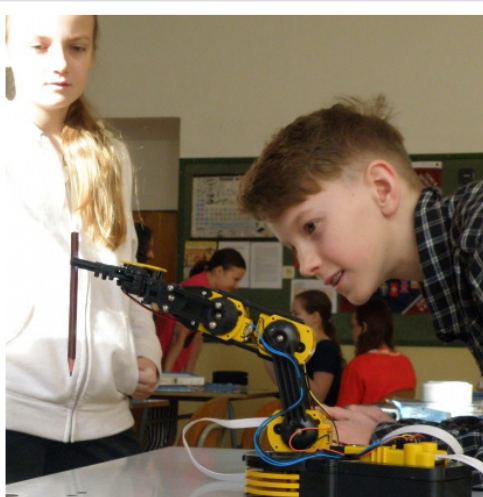
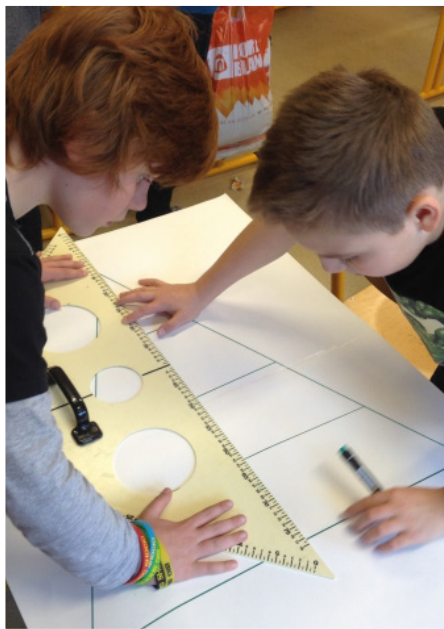
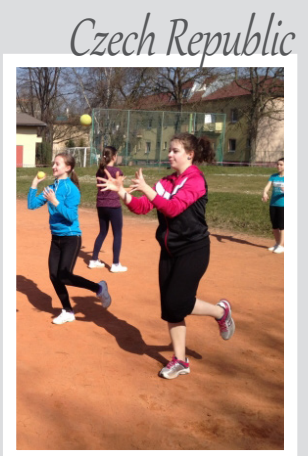
Team “Letci v akci” photos - [http://dufilo.rajce.idnes.cz/Letci\\_trenuji\\_na\\_Misi\\_X/](http://dufilo.rajce.idnes.cz/Letci_trenuji_na_Misi_X/)  
[http://dufilo.rajce.idnes.cz/Jime\\_zdrave/](http://dufilo.rajce.idnes.cz/Jime_zdrave/)

<http://v-oblacich3.webnode.cz/historie/>

Team blog “AstroFitnes team” - <http://astroclub.zstenis.cz/>

Team blog “Veverky” - <http://liskoveckamisex.blogspot.cz/>

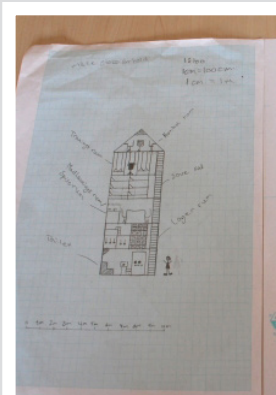








Denmark







251  
Students

12 Adults

10  
Teams

6 Cities/Regions

### Approach Taken:

Mission X 2014 was organized by Tycho Brahe Planetarium in Denmark, with financial support from the Danish Ministry for Innovation, Education and Science.

Tycho Brahe Planetarium recruited students via, newsletters, advertisement and online media.

Closing event was further sponsored by Innocent and Kiwi. And collaboration from the Danish astronaut Andreas Mogensen.

### Major Points or Important Highlights:

Regular newsletters sent out from Tycho Brahe Planetarium to the participating teachers.

Closing event: Winner class came to visit Tycho Brahe Planetarium, received gifts and a videogreeting from Andreas Mogensen.

### Lessons Learned or Areas that Need Attention:

We had difficulties with getting teachers to write their points in the point schedule. As a result, we almost have no points in the system, but many of the teachers we spoke to, had completed a number of exercises.

### Closing Events Participation:

Closing event: Friday 4.th of May. 35 children visited the Tycho Brahe Planetarium. After arrival they were given goddiebags with merchandise from NASA, ESA and Tycho

Brahe Planetarium and sponsor gifts from Innocent and Kiwi. A presentation through space and to ISS were given, and a videogreeting from Andreas Mogensen, to the winning class. We heald a special Science Show for the winning class.

**Participation in Pre-surveys:** No.

**Participation in Post-surveys:** No.

### Recommendation for Future Mission X Events:

An easier online point system for teachers. More focus on advertising for teachers.

**Support for Future MX Events:** Yes

### Internet Sites/Press Releases:

<http://videnskab.dk/blog/kan-vi-overhovedet-noget-med-rummet-i-danmark>



448 Students	42 Adults
25 Teams	11 Cities/Regions

### Approach Taken:

Mission X was introduced to us in Finland by Birgit Strømsholm at ESERO Nordic in Norway. Within the Swedish speaking school organization in Finland we have been cooperating for many years with ESERO Nordic about different courses for teachers' training. The Mission X- programme in Finland has been organized by Resurscenter för matematik, naturvetenskap och teknik i skolan, a resource center for teachers' training within the science subjects. From the year 2013 on the resource center provides training even for primary school teachers. An invitation about Mission X

was sent out to the headmasters in the Swedish speaking primary schools and the feedback was positive. 25 teams reported interest to attend the project. Information was continually sent to the teachers about the registration to the programme, the registration of the results, additional links to material about space etc.

### Major Points or Important Highlights:

A good thing with the project is that every teacher and every team can make it their own project, adapt it to their local context and at the same time follow how other teams around the world are doing the same activities. Many teachers comment the great amount of knowledge, the hands-on activities and the possibility to integrate with other school subjects as positive factors.

### Lessons Learned or Areas that Need Attention:

As we from the resource center got information about the project quite late some of the teachers comment that they would have wanted information sooner. This can be fixed

when we plan the next season.

### Closing Events Participation:

In Finland the distances are long and travelling is expensive. We have not had any collective closing event. Instead the teams have had their own closing events in the schools. The teachers report about their space-cakes, space-discos, space-camps (over one night on the school floor) and launching of different space-vests.

### Participation in Pre-surveys:

No.

### Participation in Post-surveys:

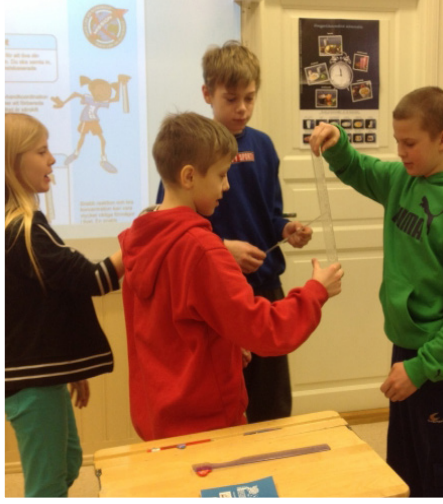
No. The childrens' comments about the project were sometimes cited in the teachers' comments in the survey that we sent out to the participating teachers.

### Recommendation for Future Mission X Events:

Yes, we are willing to participate in Mission X 2015.

### Internet Sites/Press Releases:

<http://www.skolresurs.fi/node/1745> [https://www.facebook.com/skolresurs?hc\\_location=timeline](https://www.facebook.com/skolresurs?hc_location=timeline)







1093  
Students

57<sup>Adult</sup>

48  
Teams

32 Cities/Regions

#### Approach Taken:

- Project launched in September 2013 in 7 “French academies” (school boards) for a registration by December.
- All the information regarding Mission X was sent by mail to the teachers. Tracking of information through the blog.
- Mission journal created by a teacher, printed and sent to each student.
- Mission X note book gathering all the activities with an adaptation to French education program, printed and sent to the teachers.
- These 2 documents are available on Cnes website
- Two CNES engineers have been involved in a junior high school.
- Gifts were sent to each class at the end of the project (1 diploma/1 sticker +1 flag per student).

#### Major Points or Important Highlights:

Strong interest in Space though the link between sport and science

#### Closing Events Participation:

Toulouse : Cité de l’espace (Space Museum) on Tuesday may 27. 7 classes spent a day visiting this space museum with a dedicated program of activities and welcome addressed by Claire Dramas.

#### Participation in Pre-surveys:

Some of them yes but I did not have the number

#### Participation in Post-surveys:

Some of them yes but I did not have the number

#### Support for Future MX Events:

Yes



France







144 Students	14 Adults
6 Teams	6 Cities/Regions

### Approach Taken:

During the pilot phase in 2011 Andrea Böse and Richard Bräucker were involved in planning. Mrs. Böse took over the organization until December 2013. Now Dr. Richard Bräucker, head of DLR\_School\_Lab Cologne is the point of contact for Germany.

We informed schools about the mission using the mailing-lists of our 12 DLR\_School\_Labs and additionally 24 associated school labs in the Helmholtz-research community (approximately 2000 mail addressees). We put notes on the homepages of these institutions and a special page at DLR\_next.

### Lessons Learned or Areas that Need Attention:

- We strongly have to improve advertising of the mission in Germany. There are usually a lot of actions, challenges and competitions for schools in our country. So we have to convince teachers to join Mission X.
- We will use personal mails via mailing lists of even more School-labs, because we think that the reputation of these out-of school learning sites will cause most attention.
- There will be more special homepages
- We will try to activate the German local education authorities and ask them to recommend Mission X. (This is not easy, because in Germany there are 16 states with different organizations.)
- We will use the newsletter of "LernortLabor" and "MNU"
- Automated registration is very helpful, but for the local organizer it is mandatory to get into contact with the teams as soon as possible. Thus a copy of the registration data should be sent to the local organizer immediately after registration.

diately after registration. This year, some teams did not take part, because they didn't get any answer after registration.

- Translation of the web-page into German is sometimes quite poor. Since the webpage in my opinion is the main representation of the mission, please let a native speaker revise the text. (I, Richard, would be glad to do this)
- Consider to switch from teleconferences to monthly mails. Since I usually have to teach a school class every day during the time of the conference, it is very difficult for me to attend. In my opinion there has been little discussion in these conferences, but more information which might have been given via mail as well.

### Closing Events Participation:

We were not able to organize a local closing event this year. For the next years it may be difficult again, because of the traveling expenses: I suppose it unlikely that teams travel more than 100 km to attend a closing event. Funding of travel expenses is not available.

**Participation in Pre-surveys:** No.

**Participation in Post-surveys:** No.

### Recommendation for Future Mission X Events:

See Lessons Learned

### Support for Future MX Events:

Yes. However, also next year there will be only one point of contact in Germany (one person) which unfortunately only can expend a minimum of time for this job. Thus we don't



*Germany*





see any possibility to organize special pre- post- and closing events. Even personal participation in teleconferences and face-to-face meetings may be limited.

### Internet Sites/Press Releases:

[http://www.dlr.de/next/desktopdefault.aspx/tabid-7694/13115\\_read-33098/](http://www.dlr.de/next/desktopdefault.aspx/tabid-7694/13115_read-33098/)

[http://www.dlr.de/next/desktopdefault.aspx/tabid-8986/15521\\_read-38114/](http://www.dlr.de/next/desktopdefault.aspx/tabid-8986/15521_read-38114/)

Include up to 6 High Resolution Images:

Not available. Use picture from the web-site?

<https://trainlikeanastronaut.org/de/node/469/germany>

### ORIGINAL TEXT:

[http://www.dlr.de/next/desktopdefault.aspx/tabid-7694/13115\\_read-33098/](http://www.dlr.de/next/desktopdefault.aspx/tabid-7694/13115_read-33098/)

Was ist Mission X? Eine weltweite Mitmach-Aktion für Mädchen und Jungen von 8 bis 12 Jahren. Und worum geht es? Um Astronauten – und um dich! Denn wenn du Astronautin oder Astronaut werden willst, musst du körperlich und geistig fit sein! Und genau das kannst du bei Mission X mit deiner Schulklasse trainieren! Und auch wer nicht ins All will: Nehmt euch ein Vorbild am gesunden Lebensstil von Raumfahrern und macht mit!

Nicht nur Schülerinnen und Schüler aus Deutschland, sondern aus der ganzen Welt nehmen teil! Zum Beispiel aus den USA, Kolumbien, Japan, Frankreich, Spanien, Italien, Niederlande oder Großbritannien. Alle machen dasselbe Training, lösen die gleichen Aufgaben und bilden ein internationales Team. So wie es die Astronautinnen und Astronauten bei ihren Missionen zur Internationalen Raumstation ISS auch machen.

“Mission X – Train Like an Astronaut“ ist ein Projekt, das zeigen soll, wie wichtig Bewegung und gesunde Ernährung sind. Die Aufgaben für körperliche und geistige Fitness werden im Rahmen des Schulunterrichts mehrmals pro

Woche durchgeführt – insgesamt 6 Wochen lang. Du lernst auch, dass wissenschaftliche Experimente zur Arbeit im All gehören, und führst sie selbst durch. Für jede Aufgabe werden Punkte verteilt: Je besser das Team zusammengearbeitet hat, umso mehr Punkte gibt's!

Organisiert wird die Aktion in Deutschland vom Deutschen Zentrum für Luft- und Raumfahrt (DLR). Viele andere Raumfahrt-Einrichtungen helfen mit, damit dieser weltweite Wettbewerb stattfinden kann: zum Beispiel die ESA in Europa, JAXA in Japan und besonders die NASA in den USA, die sich um die Webseite kümmert.

Wer kann mitmachen?

Deine gesamte Schulklasse, denn für erfolgreiche Weltraum-Missionen müssen Teams an den Start gehen!

Wie könnt ihr teilnehmen?

Informiert euch über Mission X auf dieser Webseite: <http://trainlikeanastronaut.org/> Da findet ihr auch die Postings vom letzten Wettbewerb – in vielen unterschiedlichen Sprachen!

Sprecht mit den anderen aus eurer Klasse – und wenn alle mitmachen wollen, geht gemeinsam zu euren Lehrerinnen und Lehrern. Die werden dann eure Teamleiter. Dann denkt ihr euch einen coolen Namen für euer Team aus – die „Hamburger Weltraum-Tiger“ oder die „München City Stars“ oder was euch gefällt.

Die Teamleiter schicken dann folgende Infos an [MissionX@dlr.de](mailto:MissionX@dlr.de)

1. Name und Adresse der Schule
2. Name des Teams
3. Name und E-Mail des Teamleiters oder der Teamleiterin

Dann erhalten die Teamleiter ein Passwort für die Mission X Webseite der NASA, dort werden alle Punkte eingetragen, die euer Team erreicht – und dort gibt es auch alle weiteren Infos, Unterrichtsmaterial, Trainingvideos. Und ihr könnt eigene Beiträge, Fotos und Videos posten!

### Google TRANSLATION:

What is Mission X? A worldwide hands-on action for girls and boys 8-12 years. And what is it? To astronauts - and about you! Because if you want to be an astronaut or an astronaut, you have to be physically and mentally fit! And that you can train with your school class at Mission X! And who does not want to space: Take a role model on healthy lifestyle of astronauts and join us!

Not only students from Germany but from all over the world are taking part! For example, from the U.S., Colombia, Japan, France, Spain, Italy, the Netherlands or the United Kingdom. All do the same training, solve the same tasks and form an international team. As it also make the astronauts and astronauts in their missions to the International Space Station.

“Mission X - Train Like an Astronaut” is a project that aims to show the importance of exercise and healthy eating. The tasks of physical and mental fitness are performed several times during the school lessons per week - a total of 6 weeks. You also will learn that scientific experiments to work in space belong, and lead them by itself. For each task points are distributed: The better has worked the team, the more points exist!

Is organized action in Germany by the German Aerospace Center (DLR). Many other aerospace facilities help to make this global competition can take place: for example, the ESA in Europe, JAXA in Japan, and especially the NASA in the United States, which takes care of the website.

Who can participate?

See all your school class, because for successful space missions teams have to go to the start!

How can you participate?

Learn about Mission X on this website: <http://trainlikeanas-astronaut.org/> Since you will also find the posts from the last competition - in many different languages!

Speak with the others from your class - and when all want to join, go together to your teachers. The then your team leader. Then you think to yourself from a cool name for your team - the “Hamburger Space Tiger” or the “Munich City Stars” or whatever you like.

The team leader then send the following information to [MissionX@dlr.de](mailto:MissionX@dlr.de)

1 Name and address of school

2 Name of the team

3 Name and email the team leader or team leader

Then the team leader will receive a password for the Mission X website of NASA, where all points are entered, reached the your team - and there are also all further information, teaching materials, training videos. And you can own posts, photos and videos to post!

### ORIGINAL TEXT:

[http://www.dlr.de/next/desktopdefault.aspx/tab-bid-8986/15521\\_read-38114/](http://www.dlr.de/next/desktopdefault.aspx/tab-bid-8986/15521_read-38114/)

Wer Astronaut werden will, muss körperlich und geistig fit sein. Dazu gehören unter anderem viel Training und eine ausgewogene Ernährung.

Seid ihr zwischen 8 und 12 Jahre alt? Dann laden euch die Weltraumorganisationen von 25 Ländern zu einem Wettkampf mit Kindern aus aller Welt ein: Im Sport- und Sachkundeunterricht könnt ihr trainieren und forschen. Genau wie bei den echten Astronauten, ist auch bei Mission X Teamarbeit gefragt. Während der Laufzeit des Programms müsst ihr die vorgegebenen Übungen durchführen und Aufgaben lösen – dabei werdet ihr mit Sicherheit viel Spaß haben und vieles lernen, das auch Astronauten können und wissen müssen.



Mission X – das Logo. Bild: NASA

Mission X – das Logo. Bild: NASA

Fragt eure Lehrerin oder euren Lehrer, ob er euer Trainingsteam leiten will.

Die Aktion 2014 startet am 13. Januar. Innerhalb von neun Wochen müssen die Aufgaben ausgeführt und Punkte gesammelt werden. Die Teams können auf der Homepage in kurzen Artikeln, Bildern und Videos über ihre Erfahrungen berichten.

Von der Internationalen Raumstation aus wird der NASA-Astronaut Mike Hopkins die Aktion verfolgen und Euch Tipps geben.

Die automatische Registrierung der Teams ist vom 04.11.2013 bis zum 09.12.2013 über die Seite <http://trainlikean astronaut.org/> möglich.

Die Missionsunterlagen können unter <http://trainlikean astronaut.org/de/mission-data> heruntergeladen werden. Dort finden sich auch Videos, die die einzelnen Übungen demonstrieren.

Bei Rückfragen können sich die Teamleiter an das DLR\_School\_Lab Köln wenden: [missionx@dlr.de](mailto:missionx@dlr.de)

### Google TRANSLATION:

Who wants to be an astronaut, must be physically and mentally fit. These include a lot of training and a balanced diet.

Are you old 8-12 YEARS? Then you load the space agencies of 25 countries for a competition with children from all over the world: in sports and social studies classes can train her

and do research. Just like the real astronauts are also asked by Mission X teamwork. During the duration of the program you have to perform the prescribed exercises and solve problems - while you will certainly have a lot of fun and learn a lot that can also astronauts and need to know.

Mission X - the logo. Image credit: NASA

Mission X - the logo. Image credit: NASA

Ask your teacher or your teacher if he wants to conduct your training team.

The action starts on 13 January 2014. Within nine weeks, the tasks must be performed and collected points. The teams can report on the website in short articles, images and videos about their experiences.

From the International Space Station from NASA's Astronaut Mike Hopkins will follow the action and give you tips.

Automatic registration of teams is possible from 04/11/2013 until 09/12/2013 <http://trainlikean astronaut.org/> about the page.

The mission documents can be downloaded from <http://trainlikean astronaut.org/de/mission-data>. There are also videos that demonstrate each exercise.

For further inquiries, the team leader can contact the DLR\_School\_Lab Cologne: [missionx@dlr.de](mailto:missionx@dlr.de)

**1313**

Students

**91**

Adults

**51**

Teams

**17**

Cities/Regions

### Approach Taken:

The 2014 edition of the International educational project Mission X – Train like an Astronaut was coordinated in Italy by the Italian Space Agency (ASI) in collaboration with ALTEC S.p.A.

In July 2013 we published the call on the ASI, giving the possibility to all interested schools in the country to participate in the project. In order to facilitate the school participation, in the call we published a calendar with the most important dates of the project: registration deadline, teachers training days, website opening, beginning of the challenge, Italian final event and International final event. Unfortunately we did not reach the goal we set: to increase by 50% the number of students enrolled compared to the previous edition (in 2013 participating students were 1036). The participation in Italy during the MX 2014 edition rose by 27% or 277 students. But an important achievement for the Italian Mission X team was that we involved for the first time school teams from Southern Italy: 176 students from South Italy joined our project.

To better prepare the students, we organized two training days for teachers, which took place between December 2013 and January 2014. The two training sessions were held at ALTEC in Turin. Training sessions mainly consisted in explaining the project and the use of the dedicated web site ([www.trainlikeanastronaut.org](http://www.trainlikeanastronaut.org)). Moreover, experts in the fields of nutrition and astronauts training participated in order to provide teachers with the necessary background to be transmitted to students. The two training sessions were broadcast live, thanks to an online platform which allowed to all teachers located all over Italy to participate in the training, and have been recorded and distributed as an extra support tool.

In autumn 2013, ASI sent to all the schools registered to the project space educational material: ESA educational books and DVD about ISS and Life in space; an educational kit, on paper and DVD about Earth Observation Satellites. ASI also sent extra material to use in classrooms during the project, such as exercise books with the MX logo on the cover. All of those products were produced and financed by ASI and ESA.

ASI set up a reference contact point for MX teachers, available via e-mail and telephone, for questions and clarifications.

Italy, through ASI, also participated in the MX survey, giving the teachers all the necessary information and collaboration also for that additional activity, with satisfying results. 173 Italian students completed on a voluntary basis the pre survey and 51 students the post survey, responding to an extensive set of questions.

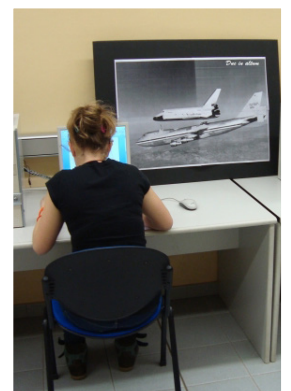
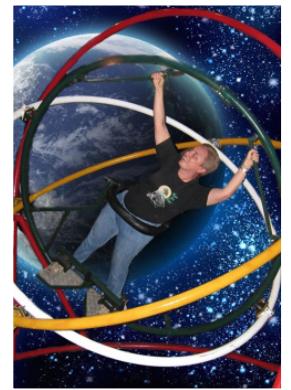
In December 2013, the Italian Mission X team organized an event “Eat like an Astronaut” with the participation of the Italian astronaut Luca Parmitano (see point C). The final Italian MX event took place in April 2014 in the ASI Headquarter in Rome with the participation via google hangout of the Italian astronaut Samantha Cristoforetti (see point E).

### Major Points or Important Highlights:

All project activities have been developed in line with the philosophy that guides Mission X, namely the importance of a healthy lifestyle, based on physical activity and proper nutrition. Based on these guidelines, it was decided to organize the training of teachers’ coordinators, inviting a nutritionist to attend training sessions, a dedicated event to the astronauts’ nutrition “Eat like an astronaut” and the Italian final event at ASI. For this occasions the nutritionist has designed an healthy and balanced meal for the young participants.

The first highlight of the 2014 edition was the event “Eat





like an astronaut”, which took place on December 9th, 2014 in the ASI Headquarter. It has been organized by ASI with the collaboration of ALTEC in order to offer a laboratory with a special tasting menu of Italian Space food created by ALTEC for the Italian Space Mission “Volare” of the Italian astronaut Luca Parmitano. He welcomed 150 students from Roman schools and explained his mission with particular attention to the space food and the nutritional and health aspects of his mission on the International Space Station. The students enjoyed the interaction with the Italian astronaut, the video «Luca Parmitano: Mission “Volare” - a guided tour of the International Space Station», but also the laboratories and seminars dedicated to space food which culminates with a space food tasting. ASI, ALTEC and ARGOTEC collaborated in the event contributing with very interesting lessons and activities dedicated to the space food and the life of astronauts on board of the International Space Station. The whole day was dedicated to the most important aspects of the Mission X Program: nutrition and sport, related to the real experience in Space of Parmitano.

Also the national final event, held in Rome on April 2nd, 2014, has been a great success of the current edition. (For more details related to the event, see point E).

Considering the subjectivity of the evaluation and scoring system for the activities, during the 2014 edition, ASI decided to highlight once more the spirit of fair play that is leading the project, emphasizing the importance of participation and not victory. This is why it was not awarded the winning team but the participation and commitment of all.

The real prize, offered to all participating teams was the richness of the project, the opportunity to learn more about the fascinating world of life in space, the possibility and the unique opportunity to pose questions to Italian astronauts (Luca Parmitano and Samantha Cristoforetti) during the two big events. The events have been designed and organized to be an important opportunity to attract and motivate participants, students and teachers, not only within the MX program, but in the broader context of space activities.

### **Lessons Learned or Areas that Need Attention:**

Calendar of events: the preparation of a detailed calendar of annual events related to the project (training days and events) has allowed schools to harmonize their annual teaching program (visits and educational trips) with these initiatives and teachers to organize better. It also provided from the outset, a clearer idea of the commitment that the project would require.

ICE: Despite a great job of promotion done by ASI, the 2014 international special event has received little interest from Italian schools. This is due to the fact that the event takes place in June, a period in which the Italian schools have closed as educational activities end in the first week of June.

But in the current edition, for the first time, not only 2 MX Working Group Members, but also some representatives (5 students, 2 teachers and 5 chaperones) of the Primary School St. Tarcisio from Ercolano in Naples will join the ICE event in Belgium.

Anyway it is advisable to organize these events in the period of school trips (March and April) and provide as soon as possible all information related to the location and associated costs. It would also be desirable to combine ICE with other important events as it may encourage teachers to promote the initiative to the schools management and families. For example, in 2012, the presence of the Olympic Games in London has been undoubtedly a great incentive to participate in the international final event that took place in that city.

Login credentials to blog: During the 2014 edition have been reported problems with the management of credentials for blog access, mainly due to rule modification.

The credentials were sent to all team coordinators, but some of whom received them with a delay, which stopped their activities for a short period.

In other cases some team leaders had to reset the password (both the old ones from the previous editions and the new passwords) because they did not work.

By the way, the MX14 Registration has been extended till 31 December 2013 and this was a really good solution we



can adopt also for the next edition, because the former deadline was too short due to the Christmas holidays. However the biggest problem we faced was the impossibility to register the same team lead with its email address for different teams. It would be good to provide solution to this problem in the next edition, because it is not infrequent to have one teacher who guides different teams during their activities in the project. The problems have been solved thanks to appropriate communications NASA-ASI and ASI-teachers.

### Closing Events Participation:

The 2014 edition was completed in Italy with a big final event, held in Rome at ASI, on April 2nd, 2014. The closing event involved more than 300 Italian students from primary to lower secondary schools, with more than 30 coordinating teachers.

In the spirit of the fair play that drives Mission X, ASI has chosen to reward participation in the project and not the victory, giving to all students and teachers the opportunity to spend a day with ASI and ALTEC highly qualified staff and to familiarize with the space environment. Students also watched a video about life in space and space missions and were introduced to the implication of microgravity on astronauts' health and related fitness countermeasures. Kids took part to fun games on space and laboratories on nutrition. The highlight of the event was a videoconference contact via google hangout with the special guest of the ceremony: the Italian astronaut Samantha Cristoforetti, who will be the first Italian woman in space. She spoke about her training experience as an astronaut, her next Mission aboard the Soyuz and the ISS, and answered numerous questions from children. Kids took part to fun games on space. Lunch break has turned into a useful opportunity to disseminate the values of the project: the lunch, nutritionally valuable and studied with the advice of a nutritionist, has emphasized the importance of proper nutrition for a healthy and balanced lifestyle, which consists of healthy foods, preferably organic and Km 0. The event has been concluded with a Space Quiz where the little participant could win a lot of gadgets and accessories related to Mission X and the Italian space sector.

We received many positive feedbacks from teachers about the event organization and contents.

**Participation in Pre-surveys:** Yes, 173 students participated to the pre-survey.

**Participation in Post-surveys:** Yes, 51 students participated to the post-survey.

**Support for Future MX Events:** Yes.

### Internet Sites/Press Releases:

1. <http://www.asitv.it/media/vod/v/1163>
2. <http://www.asitv.it/media/vod/v/1365>
3. <http://www.diregiovani.it/rubriche/scientificamente/29884-mission-x-sani-come-un-astronauta.dg>
4. [http://www.asi.it/it/press\\_room/comunicati\\_stamp/mission\\_x\\_allenati\\_come\\_un\\_astronauta\\_0](http://www.asi.it/it/press_room/comunicati_stamp/mission_x_allenati_come_un_astronauta_0)
5. [http://www.esa.int/ita/ESA\\_in\\_your\\_country/Italy/Mission-X\\_salta\\_verso\\_la\\_Luna](http://www.esa.int/ita/ESA_in_your_country/Italy/Mission-X_salta_verso_la_Luna)
6. [http://www.asi.it/it/educational/scuole/mission\\_x\\_2013\\_al\\_via\\_la\\_nuova\\_edizione\\_di\\_mission\\_x\\_allenati\\_come\\_un\\_astronauta](http://www.asi.it/it/educational/scuole/mission_x_2013_al_via_la_nuova_edizione_di_mission_x_allenati_come_un_astronauta)
7. <http://www.astrocupola.it/2013/07/mission-x-allenati-come-un-astronauta/>
8. <http://www.dire.it/dire/6370-scientificamente-mission-x-sani-come-astronauta.dire>
9. [http://www.almanacco.cnr.it/reader/cw\\_usr\\_view\\_opportunita.html?id\\_articolo=5066&giornale=5047](http://www.almanacco.cnr.it/reader/cw_usr_view_opportunita.html?id_articolo=5066&giornale=5047)
10. <http://goodnews.ws/blog/2014/03/28/mission-x-allenati-come-un-astronauta-2/>
11. <http://www.lsdmagazine.com/mangia-come-un-astronauta-presentato-allasi-il-progetto-gastronomico-con-luca-parmitano/15322/>
12. [http://www.avionews.it/index.php?corpo=see\\_news\\_home.php&news\\_id=1159257&pagina\\_chiamante=index.php](http://www.avionews.it/index.php?corpo=see_news_home.php&news_id=1159257&pagina_chiamante=index.php)
13. <http://goodnews.ws/blog/2014/03/28/mission-x-allenati-come-un-astronauta-2/>
14. [http://www.torinoscienza.it/articoli/mission\\_x\\_allenati\\_come\\_un\\_astronauta\\_26240.html](http://www.torinoscienza.it/articoli/mission_x_allenati_come_un_astronauta_26240.html)
15. <http://www.freenewspos.com/notizie/archivio/d/1240425/oggi/scientificamente-mission-x-sani-come-un-astronauta>



1775 Students  
100 Adults  
14 Teams  
9 Cities/Regions

### Approach Taken:

JAXA Space Biomedical Research Office and Space Education Center produced a lecture introducing the Mission X activities, and various kinds of educators such as school teachers learned about the Mission X challenge. Several schools expressed their interest in the Mission X, and 14 team, 13 schools and 1 after school team, among them entered to the 2014 challenge. 9 teams was new participation, and 5 teams played in second consecutive Mission X challenge. JAXA provided special lessons for some of the schools in advance of the 2014 challenge to support teachers and motivate children. Two boards of education, Tsukuba and Kawagoe, was very cooperative with our activity.

### Major Points or Important Highlights:

Japan had one pre-event in 2014 challenge, held in Tsukuba Space Center. In pre-event, we gave a lecture about astronaut training and played Mission X physical activities with children and parents. In addition, we had a kick-off event with Astro Koichi on-orbit. In the initial part, some societies, physical fitness and handicap, elderly health, lectured importance keeping health for participations. JAXA astronaut Satoshi Furukawa talked about his mission and physical changes in Space. Seconds, Astro Koichi and Chiaki Mukai, JAXA astronaut, and participated children talked about trainings of astronauts. Finally over 1700 children participated in the 2014 challenge and enjoyed training like an astronaut in Japan.

### Lessons Learned or Areas that Need Attention:

The board of education helped us in Mission X challenge. They introduced Mission X to many school teachers. Parents and elderly persons participated in the kick-off event with children. They took the lecture of physical training

and food from Astro Koichi and talk about Mission X with children.

### Closing Events Participation:

Japan did not hold a closing event. Unfortunately, it is difficult for us to have such a special event at that timing because March is the end of Japanese faculty year, or season of graduation ceremony. This issue seemed unavoidable for us.

**Participation in Pre-surveys:** No.

**Participation in Post-surveys:** No.

### Support for Future MX Events:

JAXA will continue to support the Mission X project as well next year. And JAXA will introduce Mission X to some Space Agency in Asia. We hope that the Asian friends will participate to Mission X in future.

### Internet Sites/Press Releases:

<http://www.asahi.com/articles/ASG1P3GMTG1PUJHB006.html>  
<http://www.47news.jp/CN/201401/CN2014012101002846.html>  
[http://ibarakinews.jp/news/newsdetail.php?f\\_jun=13903150484355](http://ibarakinews.jp/news/newsdetail.php?f_jun=13903150484355)  
<http://www.city.kawagoe.saitama.jp/www/contents/1391501068813/files/1312all.pdf>





# Netherlands

784

Students

33

Adults

26  
Teams

18

Cities/Regions

## Approach Taken:

Pre challenge phase: 1 September 2013 – 30 January 2014

- Early September – December: Promotion and registrations.
- 17 January 2014: Netherlands Space Office training afternoon for Dutch Mission X teachers at Space Expo (official visitor center of ESA-ESTEC). 10 teachers attended and followed presentations about NSO, space and human spaceflight, Mission X activities and website, and received related educational material.
- Distribution of training material to teachers who could not attend the training.
- Newsletter to all participating teachers.

Challenge phase: 31 January - 14 March 2014

- 31 January 2014: Joint UKSA-NSO opening event of Mission X 2014. 154 children from 6 schools participated to the opening event hosted at Space Expo and organized by NSO in collaboration with Space Expo, Leiden University, Delft University, UKSA. ESA astronaut of Dutch nationality André Kuipers participated to the opening event and a video connection with space tourist Richard Garriott and British Mission X children was successfully established. Mission X caps from NSO, flags and stickers from NASA, activity folders from ESA were distributed to the children.
- Support to teachers via weekly newsletters, emailing, blogging, Social Media.
- ESA scientist visiting a MX school.

Post challenge phase: 15 March - July 2014

- 20 March 2014: 4 Winners with maximum number of points 1800: Planet Plus (Spijkenisse), de Koffianen (Leiden), Learnstars (Rotterdam), Leonardo 3 (Leiden).
- Gym and science awards and Andre Kuipers' photobook (Exp. 30/31) were delivered to the winners at school.
- Letter from NSO, Mission X participation certificates and Mission X flags and stickers were sent to all participating

teams.

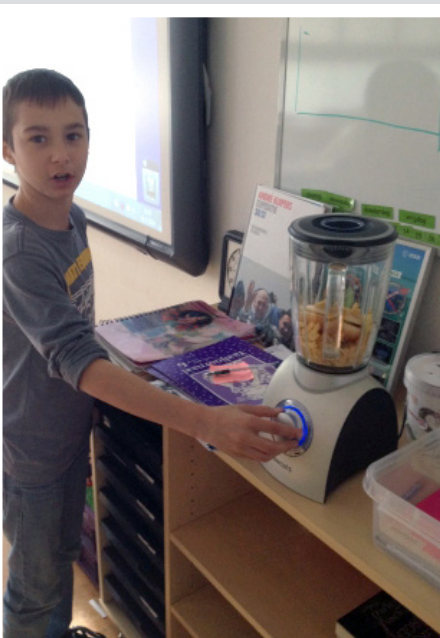
- Questionnaire was sent to participating teachers
- Newsletter
- Development of two MX-NSO activities in collaboration with ESERO Netherlands
- Working Group Annual Meeting at the International Closing Event (19 June 2014)
- Dutch school provided a video for the International Closing Event

## Major Points or Important Highlights:

- Number of participants (784, +311 from 2013), number of schools (19, +7 from 2013), teachers (33, +9 from 2013) and cities from all over the Netherlands (18, +7 from 2013) showed an important increase compared to the 2013 edition.
- 5 teams from schools with highly gifted children and 2 teams from schools with special needs participated to the challenge with success. This participation proves the flexibility and appeal of the Mission X programme for all kind of schools and children, including gifted and autistic children.
- Newsletter: 11 newsletters were sent to the teachers before, during and after the challenge phase to support them performing the activities and the upload of points and blogs on the website, facilitate and motivate their participation.
- Number of posts on the MX website (76) greatly increased from 2013 showing a major involvement of teams.
- Development of a questionnaire for teachers to evaluate the challenge based on established evaluation methodologies for educational projects.
- Proposal of two new NSO MX activities.
- Joint NSO-UKSA opening event at Space Expo with the participation of A. Kuipers and R. Garriott. The event strongly conveyed the importance of international cooperation in space and specifically between the Netherlands and UK. It fostered the relations with other institutions active in



*Netherlands*





the space and cultural area: Space Expo, ESA - ESTEC, the University of Leiden and the University of Delft. The collaboration with Space Expo and TV presenter Mylène Gordinou was well coordinated and very efficient.

### Lessons Learned or Areas that Need Attention:

- Participation of teachers to training day remains an issue; some teachers prefer training on a weekend day, others on weekday, travel distances are an issue for some teachers (travel costs are reimbursed though). Teachers who do participate to training day profit enormously compared to teachers who did not receive training.
- Host facility for opening event is not large enough to host all interested schools and their children.
- Dutch Mission X teachers would prefer more space related activities and not only exercise and nutrition; hence 2 new NSO MX activities
- Mission X website: slow approval of blog entries and points upload, automatic ranking of teams was missing, repetition of activities (after performing all) was not possible with respect to point upload (4 winning Dutch teams of max 1800 points)

### Closing Events Participation:

Two delegates participated to the MX working group annual meeting  
One school provided a video for the International Closing Event in Belgium

### Participation in Pre-surveys: No

### Participation in Post-surveys:

No, however we developed and distributed an evaluation questionnaire for teachers based on established evaluation methodologies for educational projects.

### Recommendation for Future Mission X Events:

The number of participating countries has increased too much to organize an international Mission X annual event

for children. An alternative shall be found. Furthermore, travelling abroad is often too costly for teachers and children.

### Mission X website:

- Approval of blog entries and points upload needs to be improved;
- Automatic ranking of teams per country should be implemented;
- Repetition of activities (after performing all) with respect to point upload should be made possible
- Blog entries should be posted with team name instead of teacher's name

### Mission X Facebook

Not easy to post on MX Facebook page. Would it be an idea to have a co-administrator per country?

In general, country partners delegates should be stimulated more to use Twitter and FB with the right hashtags to promote the Mission X program.

MX working group evaluation process shall be improved and a dedicated working group shall be created to establish objectives and priorities

Online management tools such as Basecamp should be used to improve the decisional process, share information, allow all partners to actively contribute to the improvement of the program.

### Support for Future MX Events: TBD

### Internet Sites/Press Releases:

NSO website: <http://www.spaceoffice.nl/nl/Nieuws/1635/Nederlandse-scholen-spelen-spannende-Space-Quiz-met-Groot-Brittanie.html>  
ESA NL website: [http://www.esa.int/dut/ESA\\_in\\_your\\_country/The\\_Netherlands/Mission-X\\_2014\\_Train\\_als\\_een\\_echte\\_astronaut](http://www.esa.int/dut/ESA_in_your_country/The_Netherlands/Mission-X_2014_Train_als_een_echte_astronaut)  
UNAWWE website: <http://unawe.nl/updates/unawe-updateNL-1403/>

Sterrenkids website: <http://www.sterrenkids.nl/cms/mission-x-train-als-een-astronaut/>  
<http://www.sterrenlab.com/>  
<http://www.ruimtevaartindeklas.nl>  
 Mission X on Twitter: [https://twitter.com/search?q=Mission%20X%20%40astro\\_andre&src=typd](https://twitter.com/search?q=Mission%20X%20%40astro_andre&src=typd)

## Mission X 2014 Questionnaire

19 questionnaires sent

Received 10 questionnaires back

1. How did you hear about the project Mission X: Train Like an Astronaut?

Twitter	3	@astro_andre
Colleagues at school	5	
Mission X website	1	
Magazine	1	
Older pupil Space Camp	1	

2. The information received before and during the project was (please circle as appropriate):

Too much	
Sufficient	10
Just enough	
Insufficient	

3. What were your expectations of Mission X?

- To learn a lot about space
- Raising awareness among children on healthy eating and exercise. Done in an enthusiastic, positive and powerful way
- An educational project in which the class would be active. Something else besides the regular classes.
- No expectations, it was the first time for us.
- To have fun and offer children a challenging assignment.
- To perform a complete project without a lot of extra work.
- No idea, did not know it was so professional.
- I did not know what to expect but colleagues were en-

thusiastic and meeting André Kuipers was very special already.

- Challenging exercises, nutritional information, increase knowledge about space.

4. Was the project in line with your expectations?

1 Totally	2
2	5
3	2
4	1
5 Totally not	0

5. Which parts of Mission X did you like the most?

- Experiments, opening ceremony, meeting André Kuipers
- Activities designed to move with the body like "Let's climb a Martian mountain, Space Roll 'n roll" etc.
- The physical activities and the opening ceremony
- The opening ceremony and the most active assignments
- The class activities (puzzle, ruler)
- The active classes
- The materials we received, the online exercises, and following Nicole Sentse and André Kuipers on Twitter for references to the project
- The children loved the interview with André Kuipers. The gym classes were extra fun as we were training like astronauts!
- The opening ceremony in Noordwijk (much better organized than last year, super!), presence André Kuipers, eating in space workshop.

6. Which parts of Mission X did you like the least?

- The activities where we had to write a lot
- Energy of an astronaut/Reduced gravity, low fat
- The tests cost a fair amount of preparation time due to adjusting to the time available and the level of the class. Students found it fun but also very strange; "That's about pee, I'm not going to do that."
- Some assignments required a lot of reading



- We did not do the ones we did not like
- It's a pity the videos are not available in Dutch or with subtitles. Some activities are too complicated for group 5/6 pupils.
- I did not understand much of the intention in the beginning. Would have been nice to receive a letter before the start of the challenge.
- The crafts during the opening event.
- The presentation during the opening event, some gym classes are not as challenging.
- The quiz at the opening event took too long.

7. Which of the following statements are consistent with what you think of Mission X?

- I would definitely recommend Mission X to colleagues.
- Mission X is challenging!
- I am very happy with the material available, both the content and the methodology.
- My students have learned about space travel.
- I think it is important that issues such as nutrition and a healthy lifestyle are introduced in a fun way
- Mission X was an addition to our curriculum
- Mission X gave us the opportunity to introduce topics such as international cooperation and multiculturalism even though this was not the main topic of the project.
- The opening event was a great opportunity to make kids excited for Mission X.
- I like to participate again next year/in two years/ maybe, with a new class.

Other comments

- The competitive element sometimes made us rush through the activities, it was no longer about quality. We liked it very much, thanks!
- Thank you for the organization: very good!; the opening day, the materials, the website, the MX activities. The children and teachers have enjoyed an educational and fun Mission X!
- It would be nicer if the rewards (photo with Andre, diplo-

mas) would arrive at the schools right after the project has ended. The project seems so long ago.

- An additional badge to earn by posting blogs on the website might help regarding the mandatory blog posts.
- We were very happy to be part of Mission X and the opening ceremony. Great materials and intensive day.
- The subject "lived" with fewer students than I expected. In some 'parent classes' they also worked with the space theme.
- The focus was really on nutrition and fitness. The children were more interested in space and space itself.
- Great material and super that Nicole's parents brought the folders to our school. Perhaps more can be done on Twitter, responding to comments, etc. Thank you, we enjoyed it!
- More supervisors when crafting during the opening ceremony and less time to sit still; 1.5 hours is too long for children.
- It was nice to participate again! Thanks for the organization! (The conclusion of the project took too long).
- Very special experience. Taking a group picture with Andre may be slightly more structured.

ORIGINAL TEXT:

Mission X vragenlijst 2014

19 vragenlijsten verstuurd (meerdere vragenlijsten per school mogelijk)

10 vragenlijsten ontvangen

1. Hoe heeft u over het project Mission X: Train als een astronaut gehoord?

Twitter	3	@astro_andre
Collega op school	5	
Mission X website	1	
Tijdschrift	1	
Ouder leerling Space Kamp	1	

2. De informatie ontvangen voor en tijdens het project was (graag omcirkelen wat van toepassing is):

Te veel

Voldoende 10

Net voldoende

Onvoldoende

### 3. Wat waren uw verwachtingen van Mission X?

- Veel leren over de ruimte
- Bewustwording bij kinderen betreffende gezonde voeding en beweging. Dat dit op een enthousiaste, positieve en krachtige manier wordt gedaan!
- Een leerzaam project waarin de klas actief bezig zou zijn. Even iets anders naast de gewone lessen.
- Geen verwachtingen, het was de eerste keer voor ons.
- Plezier beleven en kinderen een uitdagende opdracht bieden.
- Een compleet project uitvoeren zonder veel meerwerk.
- Geen idee, wist niet dat het zo professioneel was.
- Ik wist niet precies wat te verwachten maar collega's waren enthousiast en een ontmoeting met André Kuipers is op zich al bijzonder.
- Uitdagende oefeningen, informatie over voeding, kennis vergroten over ruimtevaart.

### 4. Kwam het project overeen met uw verwachtingen?

1 helemaal	2
2	5
3	2
4	1
5 totaal niet	0

### 5. Welke onderdelen van Mission X vielen het meest in de smaak?

- Experimenten, openingsceremonie, ontmoeting met André Kuipers
- Activiteiten gericht op bewegen met het lichaam, zoals: we beklimmen een berg op Mars, ruimterollen etc.
- De fysieke activiteiten en de openingsceremonie
- De openingsceremonie en de meest actieve opdrachten

- De opdracht met theorie die in de klas gedaan konden worden (puzzle, liniaal)
- De actieve lessen
- De materialen die toegezonden werden, website oefeningen, twitter account volgen van Nicole Sentse en André Kuipers als zij een verwijzing maakten
- Het interview met André Kuipers vonden de kinderen erg gaaf. Ook de gymlessen waren extra leuk door het trainen als astronaut!
- De opening in Noordwijk (veel beter georganiseerd dan vorig jaar, super!), aanwezigheid André Kuipers, eten in de ruimte.

### 6. Welke onderdelen van Mission X vielen het minst in de smaak?

- Opdrachten waarbij je veel moest schrijven
- De energie van een astronaut, minder zwaartekracht, minder vet
- De proeven kosten redelijk wat voorbereidingstijd ivm het aanpassen aan de beschikbare tijd en het niveau van de klas. Leerlingen vonden ze leuk maar ook wel vreemd; "Dat gaat over plas, dat doe ik echt niet."
- Het vele leeswerk van sommige opdrachten
- N.v.t want deze hebben we niet gedaan
- Jammer dat er geen Nederlandse filmpjes zijn. Sommige opdrachten zijn te ingewikkeld voor groep5/6 leerlingen.
- Ik snapte in het begin niet veel van de bedoeling. Een brief was prettig geweest, daardoor een rommelige start.
- Het knutselen tijdens het openingsevenement.
- De presentatie tijdens het openingsevenement, sommige gymlessen zijn niet zo uitdagend.
- De quiz tijdens het openingsevenement duurde te lang.

### 7. Welke van onderstaande beweringen komen overeen met wat u van Mission X vindt?

- Ik zou Mission X zeker aanbevelen aan collega's.

- Mission X is uitdagend!
- Ik ben erg blij met het beschikbare materiaal, zowel de inhoud als de methodologie.
- Mijn leerlingen hebben over ruimtevaart geleerd.
- Ik vind het belangrijk dat onderwerpen zoals voeding en een gezonde levensstijl op een leuke wijze werden geïntroduceerd.
- Mission X was een aanvulling op ons curriculum
- Mission X gaf ons de mogelijkheid thema's zoals internationale samenwerking en multiculturalisme te introduceren ook al was dit niet het hoofdonderwerp van het project.
- Het openingsevenement was een mooie gelegenheid om kinderen enthousiast te maken voor Mission X.
- Ik doe volgend jaar/over twee jaar graag/misschien weer mee, met een nieuwe klas.

### Overige opmerkingen

- Door het wedstrijdelement werden sommige opdrachten wat afgeraffeld, het ging dan niet meer om kwaliteit. We vonden het erg leuk, bedankt!
- Hartelijk dank voor de organisatie: zeer goed!; de openingsdag, de materialen, de site, de MX activiteiten. De kinderen en docenten hebben een leerzame en plezierige Mission X beleefd!
- Het zou leuker zijn als de beloningen (foto met

Andre, diploma's) sneller op school zouden komen (bij aanvang), nu is het project gevoelsmatig al lang geleden.

- Een extra badge of belonging voor het posten van blogs op de website zou misschien helpen of het verplichten van posten.
- Wij vonden het erg leuk dat wij mee mochten doen en bij de opening mochten zijn. Goed gezorgd voor materialen en intensieve dag!
- Het onderwerp leefde minder bij de leerlingen dan ik had verwacht. In sommige 'moederklassen' hadden ze de ruimte ook als thema.
- De nadruk lag erg op voeding en fitheid. De kinderen waren meer geïnteresseerd in de ruimte en ruimtevaart zelf.
- Wat een geweldige materialen en wat super dat Nicole's ouders de mappen kwamen brengen. Misschien meer met Twitter doen, reageren op reacties etc. Dank jullie wel, we hebben genoten!
- Graag meer begeleiders bij het knutselen tijdens de opening en graag minder lang stil zitten; 1,5 uur is te lang voor kinderen.
- Het was weer leuk om mee te doen! Bedankt voor de organisatie! (De afsluiting van het project duurde te lang).
- Bijzonder om mee te maken. Op de foto met Andre mag iets meer gestructureerd.







252 Students	16 Adults
10 Teams	6 Cities/Regions

### Approach Taken:

Mission X was led by Nordic ESERO (European Space Education Resource Office) at NAROM (the Norwegian Centre for Space-related Education) and managed by Birgit Strømsholm, the project manager of Nordic ESERO. After Birgit's sudden and unfortunate death, it was taken over by Educational Consultant Hege-Merethe Strømdal

Schools were invited to take part via newsletter, Nordic ESERO and news published at our websites [www.sarepta.org](http://www.sarepta.org) and [www.narom.no](http://www.narom.no)

The schools/ teams were provided with Mission X news/ different information through the project period and with relevant ESA ISS materials, on-line resources, booklets. In addition they were supported in different ways when needed. Although we continuously encouraged the teams to register points and post information at the blog the results shows us that all of them didn't.

The schools in Norway run the Mission X in a way that suited the students, teaching plans, and curriculum.

### Major Points or Important Highlights:

The young students – and the teachers in Norway, have had an educational and fun “expedition”, and look forward to participate next year too

### Lessons Learned or Areas that Need Attention:

We had a good experience with T-shirts for all the students. The T-shirts has been very important for identification.

We should consider changing supplier of t-shirts, or change from t-shirts to something suitable for everyone, because we had so much difficulty with the supplier this year.

As a Norwegian administrator I have a Login to the Norwegian site. But the account gives no access to the team registrations of points or other information than what I can see without the Login. The conclusion is that I don't know which team is the top ranking.

It would be fine to receive some explanations what a Login gives of extra information.

### Closing Events Participation:

In Norway the participating schools are all far away from each other and spread all over the country. Because of that we have decided that each team secured their local closing event. None of the schools have presented their closing event in the blog.

**Participation in Pre-surveys:** No.

**Participation in Post-surveys:** No.

### Recommendation for Future Mission X Events:

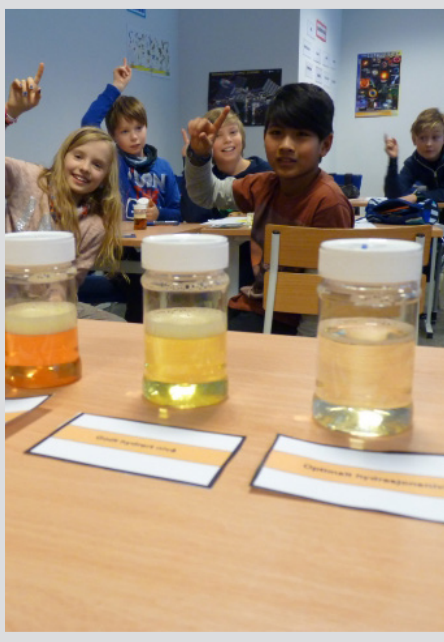
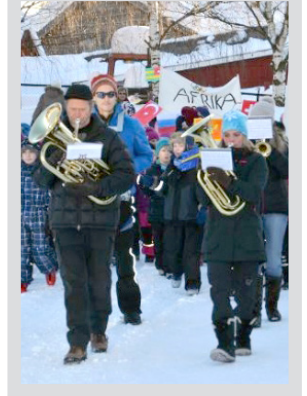
It is very important to come up very early (in September) with all the dates related to the different details of the participation. And perhaps set the Mission Countdown deadline to the end of a date (not 00:00 14th, but rather 23:59 13th)

### Support for Future MX Events:

We experience that Mission X is an educational, inspiring and motivating activity for the classroom, and we are looking forward to take part and organize Mission X in 2015.

**Media Coverage:** The Mission X in Norway was covered by local media/ newspaper (just paper version)

## Norway Continued





# Portugal

495

Students

40

Adults

17  
Teams

11

Cities/Regions

## Approach Taken:

As the coordinator of Mission X in Portugal, Ciência Viva led the project promotion and provided support to all interested and participating schools.

In October 2013, on the Teacher's Night event, we started promoting Mission X 2014 among Portuguese teachers and recruiting some schools. This event was held at the Pavilion of Knowledge - Ciência Viva, in Lisbon, and dedicated a special attention to Space subjects, while ESERO (European Space Education Resource Office) Portugal was starting to take its first steps in Portugal. It must be highlighted that ESERO PT's financial support was crucial for the success of Mission X 2014.

Following the Teacher's Night event we created a website with updated information about MX2014 and continued to promote the project near schools and teachers, mostly via Internet (website and facebook).

From the registrations opening to the last week of MX activities we focused our efforts on supporting the teams, essentially through helpdesk, providing information and replying to questions, related with registrations, important dates, main tasks, point system, blogging, activities, etc. We have also applied surveys and distributed several materials from ESA and NASA (folders, flags, banners, stickers, etc.) which were really appreciated by the students and helped to keep them motivated.

The closing event, in May, was our major activity in terms of time and resources invested, as we held the organization and bear the costs with the participation of the schools. After the closing event we promoted the project in a television programme broadcasted by a national and generalist TV channel.

## Major Points or Important Highlights:

Once more the project embraced a high number of teachers and students who showed a remarkable level of motivation throughout the activities. With the success of this project, this year, Mission X reached new locations such as Azores Islands. It's also interesting to see that some schools have been participating in this project since its first edition in Portugal.

The maintenance of a stable bond between schools and the scientific community was once again very important to bring expertise to the project and significant inputs by universities and other institutions that cooperated with Ciência Viva this year. It's worth highlighting that we preserved our collaboration with the Faculty of Human Kinetics of the University of Lisbon and counted with the cooperation of other institutions working in subjects related to children health, behaviour and education.

## Lessons Learned or Areas that Need Attention:

The project growth, since its beginning in 2011, is very positive but also challenging since it involves more resources and greater ability to follow all the teams and manage the high expectations that MX generates as an international project. Therefore, it's important to create new activities (particularly the scientific ones) and find new ways to motivate and reward the best teams.

This year it was more evident the importance of organizing events outside the schools where teams can meet each other. A closing or opening event contributes to strengthen the spirit of Mission X and works as a reward for the effort schools make at their schools to fulfill the missions.



### Closing Events Participation:

Almost 300 children and 20 teachers participated in the closing event that took place on May 9, at the Pavilion of Knowledge, in Lisbon. They carried out Scientific and sports activities (once again with the collaboration of the Faculty of Human Kinetics of the University of Lisbon) and had the opportunity to talk with athletes and experts in sports, children nutrition and health. It's to be noted the participation of an Olympic athlete (sailor), a psychologist from the Sleep Medicine Center, a nutritionist and a physiologist from the Center for High Performance Athletics – Portuguese Institute of Sports and Youth. The feedback from all the participants was manifestly positive.

Photo: Closing Event, Lisbon, May 9

**Participation in Pre-surveys:** Yes

**Participation in Post-surveys:** Yes

**Will your country participate and support Mission X 2015?** Yes.

### Internet sites/Press Releases:

Ciência Viva Website: <http://www.cienciaviva.pt/projectos/missaox/>

TV report  
<http://bit.ly/1hOK1v5>

Website for kids  
[http://kids.sapo.pt/descobrir/ciencia/pavilhao\\_do\\_conhecimento/artigo/missao\\_especial\\_no\\_pavilhao\\_do\\_conhecimento](http://kids.sapo.pt/descobrir/ciencia/pavilhao_do_conhecimento/artigo/missao_especial_no_pavilhao_do_conhecimento)

Newspaper  
[http://www.pavconhecimento.pt/media/objectos/2880\\_g\\_jn-10maio14.jpg](http://www.pavconhecimento.pt/media/objectos/2880_g_jn-10maio14.jpg)  
[http://www.pavconhecimento.pt/media/objectos/2874\\_g\\_lusa-9maio14.jpg](http://www.pavconhecimento.pt/media/objectos/2874_g_lusa-9maio14.jpg)





# Republic of Ireland

## Approach Taken:

The start of the Mission X programme was released on the BCO website and details were emailed to the teachers on our database.

Teachers to whom Mission X was of interest emailed BCO to receive a pack of lesson plans and instructions on the dates, registration etc, and asked to feedback with their, and the children's, details and impressions.

Mission X was expressly discussed at Continuous Professional Development courses nationally with primary teachers around Ireland (60 teachers) and advice was taken from Education Centres.

Mission X was used at BCO with a mixed aged group in an informal summer camp setting each day for the 5 day programme (over 3 weeks).

## Major Points or Important Highlights:

Provide the important highlights that best represent Mission X 2014 in your country.

Only 8 teachers contacted BCO for the lesson plans and were unresponsive when contacted for feedback.

We are unsure whether the teachers used the activities or not.

When speaking to Education Centre representatives, they felt that for Mission X to be a success in Ireland, representatives would need to visit schools to demonstrate the

activities and help them through the programme.

## Lessons Learned or Areas that Need Attention:

Informal feedback from teachers at the CPD courses suggest a mismatch with the Irish curriculum that the activities, while inspiring, are too advanced for the younger groups and too juvenile for older groups. The activities would need to be reworked for our particular curriculum.

The lack of budget associated with co-ordinating and disseminating the project severely constrains activities and the ability to host opening and closing events. The lack of training for teachers is an issue too and its provision would see a great increase in involvement.

We feel that a supported pilot with a select group of Irish teachers would Mission X to get off the ground in Ireland; this opinion was reiterated by the Education Centres also, but we would need financial support to do this.

**Closing Events Participation:** No.

**Participation in Pre-surveys:** No.

**Participation in Post-surveys:** No.

## Support for future MX Events:

We are very happy to support Mission X, but feel there will be little difference in terms of success without a budget to assist the teachers.



# Slovenia

13  
Students

4 Teachers

1  
Teams

1 Cities/Regions

## Short Summary:

Slovenia joined the project “Mission X – train like an astronaut 2014” for the first time. The initiative was given by the Slovenian Centre of Excellence for Space Sciences and Technologies (SPACE-SI, <http://www.space.si/en/>). Since the Mission X material was not available in Slovenian language, the decision was made to invite only one school to participate in the challenge, while in the meantime the content would get translated and made fully available for the Mission X 2015.

## Approach Taken:

For the first year in the Mission X challenge the team was selected by the SPACE-SI. We contacted the elementary school which dedicated this school year to the space topic. The teachers were motivated by the idea and the purpose of the Mission X challenge, so they decided to join. The team named itself Ortaona Space team.

In the first meeting of SPACE-SI coordinators and the team the introduction was made watching the video of Sunita Williams on the ISS. We also discussed the living in Space theme and the project Mission X was described in detail.

In the next weeks, the exercises were introduced in the regular curricula as the part of physical activity. The second meet up (28 February 2014) was all about exercises set up in a polygon.

## Lessons Learned or Areas that Need Attention:

As the country contact point, SPACE-SI has learned that for the next Mission X:

- The concept of collecting points for getting Charlie to the Moon needs to be explained to children and the purpose of the project should be adapted to the team individual dynamics. At the beginning it was not so clear to the students why should they train for points.
- Blog entering should be more emphasized (and also adapted to the team dynamics if necessary – some teachers believe that non-photographed training also counts).

## Closing Events Participation:

The final event was organized on 4 April 2014 and took place at the school in Vrtovin, municipality of Ajdovščina (<http://www.os-dobravljje.si/index.php/vrtovin>). It was held in a form of a school's sports day; however, children's parents, siblings and relatives were also invited to participate. The sports day started with the warm up. A polygon with different exercises available on the Mission X website was set up. At each of the stations of the polygon, a card with the exercise description could be found. Since children were already familiar with exercises, they were the one to teach their parents how to properly carry out the warming up.

The second part of the event was the competition between children and parents. They performed several exercises; the most popular was the “Crew Assembly” challenge. At the end, children were given Mission X certificates and other goodies sent by ESA (thank you!).

**Participation in Pre-surveys:** No.

**Participation in Post-surveys:** No



### **Recommendation for future Mission X events:**

- Extend the deadline for blog entries
- Include more exercises to stay motivated and challenged (recommendation by Ortaona Space Team)
- More focus on healthy nutrition. Seeing the Coca Cola logo on the pyramid pdf is not very inspiring.
- Due to high travel costs coming to ICE is impossible for Slovenian children. Thus, other possibilities to allow interaction between children from different countries should be considered in the future (besides blog entries).

### **Support for future MX Events:**

Slovenia is planning to join the Mission X 2015. The activities will include the translation of contents and promotion at the beginning of the school year.

### **Internet sites/Press Releases:**

- Ortaona Space Team post 1 (in Slovene):  
<http://www.os-dobravljje.si/index.php/dogodkivr/1351-mission-x-treniraj-kot-astronavt>

- Ortaona Space Team post 2 (in Slovene):  
[http://www.os-dobravljje.si/index.php/dogodkivr/1362-dan-odprtih-vrat-v-vrtovinu#g\\_1362\\_1](http://www.os-dobravljje.si/index.php/dogodkivr/1362-dan-odprtih-vrat-v-vrtovinu#g_1362_1)
- Post about Mission X in Slovenian Space Portal:
- [http://www.portalvvesolje.si/index.php?option=com\\_content&view=article&id=982:astronavtska-telovadba-na-o-dobravljje-p-vrtovin&catid=4:-za-ole&Itemid=8](http://www.portalvvesolje.si/index.php?option=com_content&view=article&id=982:astronavtska-telovadba-na-o-dobravljje-p-vrtovin&catid=4:-za-ole&Itemid=8)
- Post about Mission X challenge on the SPACE-SI website:  
<http://www.space.si/2014/slovenija-v-misiji-x-treniraj-kot-astronavt/>

### **Conclusion:**

In overall, the challenge was a unique experience that we are all very grateful for. We believe this kind of activities should be continued since they are very valuable for schools with financial constraints. The activities keep the children motivated, inspired and fit. Over the last month a significant improvement was observed with their physical performance what makes them more mentally focused in the classroom as well (win-win!).





729  
Students

28 Adults

33  
Teams

12 Cities/Regions

### Approach Taken:

How was Mission X 2014 organized and implemented in your country?

The research group ImFINE from the Universidad Politécnica de Madrid has been the coordinator from all the Spanish Schools involved in MX 2014. We contacted all the schools at the beginning of September and we invited them to participate. 80% of the schools were participating last year, 20% of the schools were new ones in the project. This year we have had the collaboration of the Astronomy Center from Huesca (ESPACIO 0.42), they worked as coordinator for the schools in Huesca, and we have had the support of ESAC (European Space Astronomy Center) located near of Madrid.

For this year we have created a blog to support our teachers and students. There our teachers were able to post news related to the project and to space exploration and they could find all the documents, tutorials and important dates they needed to know (<http://mxentrenacomounastronauta.blogspot.com.es/>). The process to work with the schools was quite clear for us and for the schools.

### Major Points or Important Highlights:

The remarkable support of all the teachers involved in MX to the project year by year.

We are really happy we got the support of the Astronomy Center from Huesca during this current year

### Lessons Learned or Areas that Need Attention:

Maybe the online registration process for this year. It was easy for teachers (and we created a tutorial for them), however we (as coordinator) couldn't know who was already registered. We had minor trouble with mails used last year for registration; in our opinion NASA should reset all the mails at the beginning of the project to facilitate the registration process if teachers use the same mail.

Material received from NASA/ESA: it was very nice to receive some material from NASA/ESA, our student really enjoyed it. Nevertheless it should be nice if we could receive all of it at the beginning of the project. As coordinator we had to send the material to our schools twice, once to send the folder and another one when we received the stickers, that mean to send twice material to the schools.

### Closing Events Participation:

Schools near from Madrid went to visit ESAC, ESAC paid for all the buses and they were in charge of the organization of the event, 200 students (the maximum ESAC could receive) and teachers were there. We would like to thanks all the staff from ESAC for their participation in the event, it was a fantastic experience for teachers and students.

Schools from Huesca went to visit the Astronomy Center from Huesca (ESPACIO 0.42). The center paid for the buses and they organized all the day for the students (70 students)

Photos of the event can be found in the MX blog

## Participation in Pre-surveys:

Yes, 344 students have participated in the pre survey

## Participation in Post-surveys:

Yes, 110 students have participated in the post survey

## Support for future MX Events:

Nowadays it is impossible for us to support an International event without financial support. Anyway we are willing to support MX 2015 if we can get financial support. It seems the financial situation in Spain is getting better and better even for the next year we could get some financial support from the central administration.

## Internet sites/Press Releases:

<https://www.upm.es/e-politecnica/?p=3732>

[http://www.espacio042.com/noticias-detalle/83/el-centro-astronomico-aragones-se-suma-a--%E2%80%99Cmision-x\\_-entrena-como-un-astronauta%E2%80%99D-como-centro-organizador/](http://www.espacio042.com/noticias-detalle/83/el-centro-astronomico-aragones-se-suma-a--%E2%80%99Cmision-x_-entrena-como-un-astronauta%E2%80%99D-como-centro-organizador/)

<http://www.diariodelaltoaragon.es/NoticiasDetalle.aspx?Id=864072>

<http://www.abc.es/local-aragon/20140323/abci-nasa-astro-nautas-jovenes-huesca-201403220914.html>

[http://article.wn.com/view/2014/03/23/Disciplina\\_de\\_la\\_NASA\\_para\\_que\\_los\\_jovenes\\_tengan\\_habitos\\_ma/](http://article.wn.com/view/2014/03/23/Disciplina_de_la_NASA_para_que_los_jovenes_tengan_habitos_ma/)







590 Students	49 Adults
26 Teams	12 Cities/Regions

### Approach Taken:

Mission X was led by Teknikens Hus in Luleå, Sweden and managed by Marianne Nilsson, Science Educator and Project Manager. Nordic ESERO has been our contact point and provided us with support, information and materials.

Schools were invited to take part via newsletter and information was spread through our networks (between Science Centers, teacher networks) and via lectures given by Swedish National Space Board in several cities all over the country. We also posted information at our website [www.teknikenshus.se/skola/mission-x/](http://www.teknikenshus.se/skola/mission-x/) and Nordic ESERO announced at [www.esero.no/index.php?fid=402&oid=2332](http://www.esero.no/index.php?fid=402&oid=2332)

The schools/teams were provided with Mission X news/different information through the project period and with relevant ESA ISS materials and on-line resources. In addition they were supported in different ways when needed. Although we continuously encouraged the teams to register points and post information at the blog the results shows us that all of them didn't. The schools in Sweden run the Mission X in way that suited the students, teaching plans and curriculum.

### Major Points or Important Highlights:

The students and the teachers in Sweden have had an educational and fun "journey", and look forward to participate next year too.

### Lessons Learned or Areas that Need Attention:

The teams appreciated to receive t-shirts and have expressed that those were important for identification and teambuilding. Nordic ESERO had problems with the supplier who, at the beginning, was delayed with the delivery and then couldn't deliver larger t-shirt sizes. Nordic ESERO worked hard to solve the problems and at the end of February we received the t-shirts, but not enough in the larger sizes. As a matter of fact some students didn't receive a suitable t-shirt although we didn't send any t-shirts to teachers. Our suggestion is to change supplier or give participating students and teachers Mission X caps/sweatbands or something else, where one size fits all.

It is important for teachers to receive educational materials at least two weeks before Mission X starts as they need time to plan and prepare lessons. There were difficulties for ESA to find the binders with the ISS Education Kit for Primary in the Swedish language and as a result we weren't able to send those to schools before the end of February. The binders were necessary for teachers who are not used to use Internet.

### Closing Events Participation:

In Sweden the participating schools are far away from each other as they are spread all over the country. Because of that we have decided that each team secured their local closing event. One example of such event is presented at <http://trainlikeanastronaut.org/sv/content/hurray-mission-completed/040114>

### Participation in Pre-surveys: No.

### Participation in Post-surveys: No.

### Recommendation for future Mission X events:

It is very important to come up very early with all the dates. The on-line registration should close in the middle of November to make time to prepare teachers before the Mission starts. Maybe we are the only partner who has this experience. If so, it probably depends on our late attending.

### Support for future MX Events:

We experience that Mission X is an educational, inspiring and motivation activity for the classroom, and we are looking forward to take part and organize Mission X 2015. Nordic ESERO has supported us with materials and has been our contact point during the project and we hope it will be possible in the future.

The costs for sending materials to schools during Mission X 14 haven't been covered yet, but we have been promised economical support from the Swedish National Space Board. It is very important to us that even during Mission X 2015, to regain the cost for deliveries.

### Internet sites/Press Releases:

Share with us links, press releases, etc. that provided coverage of Mission X 2014 in the internet and news media

Teknikens Hus were interviewed in radio, play forward for about 7:57 minutes to listen <http://sverigesradio.se/sida/avsnitt/283513?programid=275>

Swedish National Space Board website <http://www.rymdkanalen.se/feed-import/2013/12/20-svenska-skolor-deltar-i-mission-x-%E2%80%93-far-trana-som-astronauter>

Mission X in Sweden was also covered by local media/newspaper (attached pdf) and this link <http://www.unt.se/knivsta/elever-uttagna-till-nasa-projekt-2810179.aspx>

Some of the team leaders in Sweden have also posted information about Mission X on Blogs, for example [http://xn--bjrnsbjrnarna-jmbf.se/?page\\_id=7](http://xn--bjrnsbjrnarna-jmbf.se/?page_id=7)  
[http://billingskolans02or.se/?page\\_id=223](http://billingskolans02or.se/?page_id=223)  
<http://vonbahrsskola.se/blog/2013/12/mission-x/>

Teknikens Hus has continuously updated the information about Mission X <http://www.teknikenshus.se/skola/mission-x/>





# United Kingdom

9059  
Students

400 Adults

183  
Teams

183 Cities/Regions

## Approach Taken:

Mission X is now in its fourth year. The UK Space Agency continues to be the lead organization and has contracted the programme management to Venture Thinking, which works closely with Hannah Garrett and Jeremy Curtis in the education team. This year, additional support for Mission X activities was provided by the European Space Education Resource Office (ESERO-UK) space ambassadors who helped to promote and support Mission X in selected schools. Other supporting partners have included the Royal Aeronautical Society, British Interplanetary Society, UKSEDS, The Parliamentary Space Committee, QinetiQ and universities including the University of Cambridge. The BBC learning team included Mission X Train Like an Astronaut activities in their public outreach events in support of their Stargazing Live TV programme and in their Blue Peter programs. Mission X is being included in the outreach programme scheduling for Tim Peake.

A central budget was used to provide training, a small batch of T-shirts per schools and regional launch and landing events.

## Major Points or Important Highlights:

There have been numerous highlights this year. The feedback from all the schools who have been interviewed as part of the evaluation has been exceedingly positive and this year we have created more detailed case studies to illustrate the approach taken by several of our schools.

Typical comments from teachers have been:

"It was a fantastic experience for all our children. The programme of activities was well matched and extremely thorough and everyone enjoyed participating. Space is a fascinating topic and I am certain that many will have been inspired by this. Let's hope that one day one (or more) of them will be looking down on Earth and remembering their encounter with Mission X." (Nick Murphy, Willow Farm School)

"Simply fab." (Edward Vine, Hockerill Anglo-European College)

"Wonderful to be able to be able to have fun and be imaginative with the students – to create a sense of awe and wonder." (Manuden School)

Mission X has been fantastic. We are taking it across the whole school from September 2014. It was part of my submission to the Primary Space Award Gold award. Julie Wiskow, Rode Heath Primary School

"Fun and excitement involved in learning in a context, as well as making a hydration scale" (Shelley Fisher, Bramley School)

"We used Mission X as a cross-curricular vehicle for the delivery of the Keeping Healthy topic in Year 5 Science (which we followed with the space topic) and included it in the developing stamina and skills part of PE. It was an excellent way to link the two elements of keeping healthy (eating and exercise). We have referred many times to the MAGs and the children had great fun simulating urine and it conveyed the message about the simplicity of the test. We



extended it to add a digestive system one with orange juice crackers and a pair of tights. Excretion in the raw!” (Sally De Cock, Sarum Hall School)

“It just goes from strength to strength. Sadly I’m changing schools but I will take Mission X to my new school and spoke about it in my interview for promotion.” (Charmain Dunham, Forest Hall School)

“We were able to have such a hoot [English for laugh] with the programme – at one point we had all the children in the hall pretending to be launching in a rocket. I made the rocket noises. We all had such fun and the PE activities were enjoyed by all – especially the children who wouldn’t normally get excited.” (Mr Atherton)

“The school stunk of chicken bones ... we even had our local butcher helping out with Mission X. The children won’t forget these lessons.” (Angie Alloway, Studfall School)

“They love the challenge of the physical activities. This year I also found that the agility course task particularly useful as the people in my classes that did really well were not necessarily those who are perceived as the most sporty. They were the children who are quite careful. The children who did succeed at this task got such an incredible confidence boost, it was great to see.” (Vanessa Anderson, Classroom teacher Scotland)

Feedback from the children has continued to be very positive with comments such as:

“It was spacetacular  
I pretty much liked everything  
I love dressing up in the spacesuit.  
The fat in the food looked horrible – I’m not going to eat that!”

It has been particularly pleasing to see the number of schools who have continued to offer Mission X over a

series of years and to integrate and embed Mission X into the curriculum. Forest Hall School, the initial pilot school, has extended the Mission X activities each year and in 2013/2014 developed a cross school competition to design spacesuits. A spacesuit catwalk was extraordinary fun and students enjoyed researching space and designing garments. The school has continued to share ideas and expertise with new schools, as demonstrated at the training event at the House of Commons in December 2013. The school has recruited two new schools to take part in Mission X this year. Eastlea Community School in Newham and Kingswinford School in Dudley have continued to develop secondary/primary school partnership models over several years and have included it as part of their primary/secondary transition arrangement.

Another highlight has been the number of new schools who are running Mission X after having attended teacher training sessions in targeted areas: Scotland, Derbyshire, East Midlands and Wales. Schools such as Studfall Junior School, a large junior school serving a disadvantaged community (see separate detailed case study), have demonstrated how much impact the programme has had on the school, the teachers, the students and the wider community. In contrast, another school new to Mission X - Manuden Primary School (see separate detailed case study) - is a tiny rural primary school with a small class of students in years 5 and 6. Manuden was able to develop the programme in an equally impressive but different way using an inquiry-led approach. The flexibility of Mission X to work equally well in such different schools is impressive. Northbury Junior School is an inner city junior school who have run Mission X for the second year and their programmes of Mission X and other space activities have been singled out for the Space Education Quality Mark Gold award. Eastlea Community School has continued to provide support to over 300 children in its feeder primary schools. Older students have supported the delivery of the launch and landing days. Some of the students now supporting took part in the programme in their primary schools. They spoke of

how the programme had developed their interest in space, confidence and awareness of nutrition and hydration. Rode Heath Primary School has offered Mission X activities to its students along with other space activities supported by the European Space Education Resource Office. This had led to the school being awarded a Primary Space Education Quality Award. Other schools have delivered Mission X through after school club activities and time through a Saturday School. The range of different delivery methods has meant that schools have been able to customize Mission X to their timetables.

Other highlights have been the high profile launch and landing events across the country. These have been organized in partnership with other organisations such as the Parliamentary Space Committee and the Royal Aeronautical Society.

They have enabled students and teachers involved in Mission X to meet each other and the UK Space Agency team in central locations. External presenters such as Spacefund, Out of this World Learning, Stomp Rockets, Spectrum Drama, MC Orbit, Amy Lunn and Laura Thomas have provided large scale interactive learning opportunities which have helped make these events cost effective and high impact. Many of the schools in their evaluation reports cited these events as being highlight activities. This account from one of the children at Hollygirt sums the sense of occasion up:

“Who would have thought that we would be invited to show our work we had been doing in Astronomy club, on how weightlessness in space affects bone strength, to members of the Parliamentary Space committee. It was nerve-wracking but an amazing day which I will never forget. I loved taking round the samples of space food to offer to the MPs and listening to the live web conference from Tim Peake, including asking him our own questions. It was very funny when the security scanner picked up the shape of the bones (plastic) Mrs Atherton had in her bag and wondered why she was taking a bag of bones into the House of

Commons! We met our MP Anna Soubrey who was really kind and showed us round the whole buildings including the debate and the public gallery. It rounded of a wonderful, fantastic experience! Thank you Mission X”

The United Kingdom co-operated with the Netherlands on a bilateral event with input from Andre Kuipers and Richard Garriott. Despite the technical problems the event was well received and attended by over 250 children from the UK. Professor Paul Roche and Dr Helen Mason provided additional space related content to enrich the science focus of the day. MC Orbit hosted the event and a special Mission X rap was composed and shared with our Dutch counterparts.

A Moon and Jupiter Watch evening at the University of Cambridge was well attended despite flooding and schools valued the opportunity to involve parents in the events. One of the teachers described this sort of access as life-changing and inspirational for the students. Astro Charlie featured in the presentation made by Professor Carolin Crawford who explained the scale of the solar system and the routes Astro Charlie would need to take to get to the ISS and the Moon.

Schools have continued to be imaginative in the way they have extended and embedded Mission X across the curriculum, linking the programme with art, drama, music, and additional science activities. In our most successful schools PE teachers and Science teachers have worked together on programme design and delivery.

Many schools have included Mission X updates in their letters to parents, in articles in their school newsletters, in their school calendars and have shared Mission X activities to others through classroom assemblies. (see examples in the media sessions) Several schools I have visited have featured photographs on the visual presentations at the receptions of their schools – an indicator that they are proud of the programme! One difficulty is being able to track all the different publications – give the scale of Mission X now







in the UK.

The Tshirts continue to be valued – especially by schools who purchased additional class sets. Comments included: “In PE the girls loved wearing the Tshirts and it seemed to give them an extra bit of energy and enthusiasm in all the activities. One child who is always miserable couldn’t stop smiling when he got his Tshirt. We even took a picture because it was so rare to see him smile.”

The new Banbury Space Studio School is actively seeking to integrate Mission X into their curriculum for Key Stages 3 and 4 using a project based learning approach.

The continued support, positivity and enthusiasm from colleagues at NASA and ESA have been genuinely valued. The project has created an international community spirit and this community spirit has been sensed by all the schools from the blog posts.

### Other highlights of note have included:

- Using the NASA video clips to help start the lessons.
- The Wednesday workouts posted on Facebook.
- The Channel 4 Live programmes which featured Luca Parmitano, Koichi Wakita and Mike Hopkins and Tim Peake – a number of schools signposted this to children for out of school homework.
- World Space Week activities to promote Mission X Train Like an Astronaut
- Peer to peer education where older students have then shared their learning with younger students.
- Feedback from teachers on the value of the training sessions.
- Blue Peter coverage of Mission X (see link below)
- The involvement of younger university students to support the programme via the UK Seds.
- The range of space experts who have given time to support events – Professor Andy Newsam, Professor Paul Roche, Amy Nunn, Professor Carolin Crawford, Dr Helen Mason, Laura Thomas, Jane MacArthur are just a few of the space experts supporting the programme in the UK.
- Continued partnerships with Universities and the BBC.
- Interest from new partners interested in getting involved in Mission X 2015, including invitations from Teeside University, University of Bristol, University of Durham, University of Manchester and University of Warwick.
- Opportunity to work with the Science Museum and to schedule teacher training as part of their scheduling in the autumn.
- Number of downloads of Mission X activities on teacher resource websites.
- Schools creating posters on how to train like an astronaut as assessment for learning resources.
- Tweets and live tweets from astronauts to students taking part in Mission X activities
- Support of Tim Peake and the opportunity for Mission X students to meet him at Farnborough International Air Show in July 2014.
- The variety and range of log posts
- Support of ESERO-UK team and space ambassadors and opportunity to demonstrate Mission X activities at the Primary Science Teachers Conference in York.
- Spacesuit loan from Heinlein Education Trust which has visited numerous schools and given a genuine context to the crew assembly and hydration station activities.
- The number of downloads of the resources from the Times Education Supplement Connect site and the hosting of Mission X resources on the ESERO-UK site. There have been over 15000 downloads that have been favoured by over 50 people.
- Special needs students including students with hearing impairment, Asperger’s and autism and physical disabilities continued to participate in the programme and enjoyed the activities which were amended to meet their needs.

Comments from supporters have included;

The event in Wales was a fantastic end to a great project and it was a pleasure seeing the kids getting involved with the Mission X Rap; especially when they came up with their own dance moves :) Jon Chase

### **Lessons Learned or Areas that Need Attention:**

The main issues have been related to managing the growth and geographical spread of schools involved in the programme. This has meant that keeping track of registrations and keeping a more personal involvement with the schools has been more of a challenge. The programme managers have travelled more in order to support schools. We have managed to keep as closely involved as we can through the regional events where a number of schools and students have been able to attend. Face to face contacts have been invaluable to get the most insights into the programme and genuine feedback on how things can be improved and our curriculum needs. As the resources are freely available, there are also schools using Mission X activities but which are not formally registered.

The auto-registration process helped with the access to passwords but meant that it was difficult to keep track of which schools were registering. Nubia quickly tried to resolve this but where schools chose team names that were generic it was difficult to identify them and offer support. It might be helpful on the registration form to get the schools to enter their postal address.

The points table listing this year meant it was difficult to get an overview of who was 'top of the leader board'. This was not a huge issue for the UK as schools were not especially competitive but it did mean that it was more difficult to see the most active schools. The points system caused some confusion with some schools entering the number of

pupils rather than the number of points they had allocated. Although not especially committed to posting points, UK teams enjoyed seeing the progress made by Astro Charlie.

Schools have reported that they have found the blogging time-consuming, especially where they have slow download speeds. They sometimes found it difficult to find the blogs that they had previously posted and the main blog was sometimes dominated by posts from a single country which meant it was difficult to get a full picture of the international efforts. In the UK we tried to post regularly. If there was a way to upload blog posts in a batch but to schedule their publication then that would make blogging more efficient and add variety.

Schools continued to note that the education materials were quite bulky and the UK Space Agency have created a 'bite size' version, which we hope the teachers will find easier to use in class. Initial feedback has been very positive.

Schools who have been involved in Mission X over multiple years have developed new content to keep the programme fresh. However, these activities are not eligible for points and so a number of valuable activities are not necessarily reflected in the points tally.

Providing and encouraging healthy lunches has continued to be an issue for us at events e.g. one school was frustrated that other schools hadn't encouraged children to bring healthy packed lunches. However, this shows the importance of the programme and the need to engage parents. A sticker to reward a healthy lunch was suggested.

The cost of resources to deliver the programme was identified as an issue by a couple of the newer schools. However, we have been trying to suggest low cost ways of delivery by adapting the activities to resources that are already available.

Schools are overwhelmed with information and the newsletter contents and requests for information were sometimes missed. Schools were more likely to respond to personal requests for information rather than to respond to the newsletter.

Several schools requested more extension ideas around the activities. In particular, they wanted to encourage students to develop better investigative skills and also scenarios around the Mission X themes to develop questioning skills.

A number of schools found it more difficult to run the physical activities this year in the timeframe because of flooding, which meant that the sports fields couldn't be used. Increasing numbers of schools have extended Mission X into the summer term so that they could do justice to the PE activities.

The closing date in mid March was perhaps a couple of weeks too early for UK Schools since it meant that the National Science and Engineering Week (NSEW) was outside of the timeline of the project. NSEW has been a focal point for landing events. A schedule of Christmas to Easter would work well for schools who are offering Mission X as part of a themed activity.

Schools noted that it was difficult to cover costs of getting to events, especially the International Closing Event e.g. travel, supply teacher costs and risk assessments. However, the most determined schools managed to identify strategies to support student involvement.

Ordering and distributing T-shirts was more complicated this year because of the numbers of schools being supported and the late requests for additional shirts. The cost of distribution added to the overall costs but where possible the shirts and goodies were distributed to central drop-off points.

The UK science curriculum is changing in the Autumn of 2014 so we will need to be mindful of how Mission X can

continue to be integrated into the curriculum and the time that teachers may need to devote to new management requirements. One teacher noted: "For Primary schools next year they need to be closely tailored to fit the new curriculum. Teachers will be struggling under the load of reorganizing English and maths. Any offering will have to be able to be used pretty much off the shelf or teachers will ignore it. I will be sorting my science schemes of work out over the summer holiday as I expect will many others."

Where schools didn't take up the opportunity as much as they had hoped this seemed to come down to staffing issues in the main part with teachers being given unexpected additional responsibilities or with staff sickness or promotion affecting capacity. Most schools were very apologetic and were keen to see this as a blip and wanting to resume involvement in 2015.

Several schools have requested additional content to keep Mission X fresh as some children will take part in the programme in consecutive years. More content aimed at Key Stage 3 (ages 11-14) students is especially requested – a number of schools such as Hockerill Anglo-European College, Forest Hall and Banbury School have extended the range of activities e.g. dissection of heart to show cardio-vascular system, testing for glucose in urine samples, programming of Lego mindstorms, careers talks etc.

### **Closing Events Participation:**

The UK has organized a range of closing events. Approximately 800 children have taken part in one of the closing celebration events. Some of these have been school based such as those organized by Eastlea Community School and Northbury School. Others have been regional events including:

June 3 QinetiQ – Opportunity for teachers to train like an astronaut attended by two schools –see press release

June 16 Glasgow Closing Event attended by 50 children

June 17 Manchester Fascinate Children's Exhibition with



### Mission X Showcased to

July 3 Cardiff supported by the University of South Wales and with 50 children from two schools

July 8 Leicester Challenger Centre attended by Studfall Junior School

July 18 Farnborough supported by Tim Peake with 120 attendees

Two schools sent representatives to the International Closing event with a mix of teachers and parents acting as chaperones. The feedback from the national and international closing events was positive. Sample feedback included:

Studfall Junior School Corby Northamptonshire  
Mission X Case Study ... To Boldly Go

### Description of the Approach Taken

A four form entry school in Corby reaching out to 446 children including an integrated special needs unit catering for a range of needs including hearing impairment. The school is split across two sites and supported by two headteachers working in partnership. Angie Alloway is the science lead across the two sites – looking after 1000 children.

Lead Mission X teacher Angie Alloway attended the training session at the House of Commons, which she said sent her away buzzing with excitement and ideas. The school has been supported by two ESERO-UK ambassadors from the National Space Centre, Charlie Isham and Sophie Allen, and is working towards the Space Education Quality Mark using evidence from Mission X as part of their submission. Mike Grocott had previously provided the school with an ESA International Space Station primary education kit, which was used to supplement Mission X resources.

### Quotes from teachers

"You need to make it as easy as you can for other teachers... provide lots of resources and then encourage classroom teachers to extend and adapt and share lesson ideas.

That way good ideas such as using the aero bar to demonstrate bone density was picked up by other teachers."

"It was jolly good fun planning... a bit miraculous that we pulled it off as we started late but we had lots of enthusiasm and support from heads, classroom teachers and technicians. Studfall is a magical place."

"We really took MissionX across the curriculum – art displays, science, reading books such as Sea of Tranquility, PE, geography."

"Mission X was good – they didn't realize they were doing PE."

### Quotes from students

"I like the fact that sometimes we worked as a team and sometimes on our own."

"I liked the bear and crab walks."

"I liked learning about what they do in space ... I didn't think they were up there for that long. I liked seeing how they drink and sleep in space – I didn't think they slept on the walls."

"We would like more chemistry and test tubes."

"The PE activities are a bit basic – we would like to use resistance bands and have some more challenges."

"We liked it all but would like more on launch and re-entry (Jake)"

"The best thing was doing science and the PE – we did lots of different activities (Lucy)"

"I liked the bit when Mrs Alloway was doing the McDonalds meals and we did the crew assembly with the gloves. It was really nice when we decorated our classroom and we made two aliens – one named Kelly (Erin)"

"I pretty much liked everything – we all got T-shirts. The t-shirts made me feel involved – they were colourful (Stephanie)"

"I liked the PE activities – they were a bit different to our normal PE activities."

Mission X in Manuden Primary School - A small primary school in a rural setting in Essex – new to Mission X in 2014.

Number of Students involved 11 year 5 students

Number of Teachers 1 plus teaching assistants

### Approach Taken

Mission X has allowed me as a teacher and Headteacher to be creative - to use the space theme to open doors and to create a thirst for knowledge and to create a sense of awe and wonder, fun, humour, joy and excitement ... rather than turn to page 32 and do this worksheet! Science if you don't watch out can be so stuffy – music, art, fashion allowed us to make science accessible. The space theme encouraged the students to think beyond their little microcosm. It's been fun being a Star Trek Teacher! It's not often you get to use I'm in love with a Starship trooper an education resource!

We've taken a creative, enquiry based approach which has been student led. This has meant that I've not always known where the lessons will end up but has meant that each lesson has been about exploration, research and sharing knowledge. We've deliberately not been competitive – but have encouraged students to take the learning in a way that excites them. One student has designed a Space X launcher and an Ariane launcher out of Lego. The approach I've taken is akin to jazz – lots of different strands of activity going on but united by the space motif. We've used Learn Pads extensively which have been preloaded with a range of Apps (e.g. Redshift) and includes internet access so the children have really been able to research actively different topics and extend the learning into the history of space exploration, astronomy etc.

### Important Highlights:

"Mission X has opened lots of doors – and as a small school we have been lucky to have been able to take advantage of some if not all of the opportunities offered."

"We loved the RAES visit– that was ace."

"The visit to Cambridge was really special – for ten year olds to visit the university and go through the doors of the lecture theatre ... who knows where that might lead. It could be the opportunity that leads one of the students into astrophysics."

"We enjoyed having external speakers visit us – Robin from the National Space Centre."

"The interest of the children and the feedback from the parents has been excellent."

Other highlights included:

- Visit to Forest Hall School
- The fashion show
- Sharing information and resources with parents including hyperlinks for further research at home Using LearnPads with preloaded Apps and coding using Espresso coding so that students can code space journeys and get a sense of time series,

### Issues

The school was flooded and we have kept the PE activities until the summer term because we can go outside and do them.

Scoring wasn't a priority it seems an odd thing to do – to score yourself. More about inspiring love of learning rather than competition.

Visits to Farnborough aren't realistic for this age group – three hours of travelling each way. However London is much more accessible.

Trying to plan ahead for activities – it would have been helpful to have had a calendar of dates in advance.

Training wasn't fully complete because most of the schools in the cluster had already taken part in Mission X.

Newsletters were very helpful - Primary Schools might like a slightly shorter version of bite size chunks.

### **Involvement in Mission X in future years**

Our year 5s will do Mission X – in some flavor or other.

Publicity

Newsletters in schools

Articles for Manuden Parish Council magazine.

Children's View points

Out of this world

Amazing

Brilliant

Awesome

Educational

Fun

Inter-galactical

Super

Interesting

Exciting

Supertastic

Mind boggling

### **Children's Perspectives of Highlights**

Wearing the spacesuit was a highlight

Eating my marshmallownaut – Gary

Visiting Forest Hall School – all the exercises

Moving the bouncy satellite at Forest hall

When we were shooting the rockets launch at – stomp rockets

### **Children's Recommendations**

Take us up to space or to visit the National Space Centre Science Museum – at the end of term

Meet astronauts

More physical activities e.g. survival skills

Visits to AirKix at Milton Keynes – experience of simulators

### **Case Study Eastlea Community School**

Eastlea School in Newham supported four primary schools – Gainsborough, Star, Grange and Portway in East London. 300 children supported by 30 adults and ten teams took part, each team completing 9 activities.

The school has been involved in Mission X for the past 3 years, and through our on-going work with partner primaries, and those schools involved in previous years, we recruited ten teams, as that is our capacity when our school is running its normal timetable. We agreed two dates for launch then landing, we booked a number of external agencies for our landing day to maximize impact and fun factor. We scheduled two full days program, including feeding our visitors and shared the program with our primary partners. Heather MacRae was the original contact, who sold the concept to us.

### **Major Highlights**

We introduced a 'trampolining' element as part of space fitness, and this was a huge success for both students and staff. Also on the landing day, our 'Rocket Making and Launching' was spectacular, the mobile planetarium and classroom medics were all total successes.

### **Issues**

Total success.



### Closing Event Participation

Did your school participate in any opening or closing event? Opening event, 5th March, explaining about Mission X, and then starting the program of life long fitness, alongside quality diet (totally delivered in-house by Eastlea staff)

Closing event, 7th May, employing four completely different external agencies, to round off the program. Ranging from; rocket making & launching, fitness training, looking at their own levels of fitness and finally, star gazing.

### Internet sites/Press Releases:

OV.UK

Young 'astronauts' from UK have the right stuff for Mission X

<https://www.gov.uk/government/news/young-astronauts-from-uk-have-the-right-stuff-for-mission-x>

From:

UK Space Agency

History:

Published 27 June 2014

Part of:

Science and innovation

Students from across the UK participated in the international challenge, Mission X: Train like an astronaut.

Rap YouTube created by MX14: Team UK:

<https://www.youtube.com/watch?v=KmKoncifuEQ>

Mission X: train like an astronaut collage:



Since January, schools from Cornwall through to Scotland and from Wales through to Norwich have been taking part in the international Mission X challenge: a series of science, fitness and nutrition missions in the context of training like an astronaut. Now these schools, and other Mission X schools from across the world are celebrating the close of Mission X: Train Like an Astronaut 2014. Together they have proven that young people from across the world have the right stuff to reach for the stars.

Mission X is an international educational programme designed by NASA and led in the UK by the UK Space Agency. It aims to inspire interest in science, nutrition and fitness in school students aged 8 – 12 years old by using astronauts as role models. It uses missions within an astronaut training context to teach how good diet and exercise play an important role in human performance in space and on Earth. Each successful Mission X mission counts towards helping the Mission X Mascot Astro Charlie walk to the Moon on the international website [www.trainlikeanastonaut.org](http://www.trainlikeanastonaut.org). As of 14 March, Astro Charlie has now landed on the Moon, with ESA mascot Paxi, thanks to the efforts of children across the world.

Last week, in celebration of this achievement, two groups of students from the UK attended the 3-day Mission X 2014 International Closing Event at the Euro Space Centre in Belgium. During the event they experienced first-hand both the international nature of space exploration and the challenges of training to be like an astronaut, including experiencing apparent weightlessness and undertaking a shuttle launch simulation. The students met ESA astronaut, Frank de Winne, the first ESA astronaut to command the ISS and the current Head of the European Astronaut Centre in Cologne, Germany. Students also had the opportunity to share their Mission X experiences with other young people from across the world.

Dr. Charles Lloyd, Mission X Lead for NASA said:

“The International Closing Event for 2014 had a perfect setting at the Eurospace Centre in Belgium. Students from

across Europe worked together on space missions and had first-hand experience of the international nature of space exploration and astronaut training. We were delighted that students from the UK were able to join us and have been impressed by the Mission X programmes in Northbury Junior School, Barking and St Patricks School, Salford."

Steve, year 5 teacher from Northbury Primary School, Barking, added: "It's been a fabulous experience for the children. They have been able to take part in astronaut briefings and simulated missions. I can see their communication and science skills have developed during the International Event."

Ebenezer, a student from Northbury School, said:

"I loved it all but it was especially fun walking on the Moon and meeting Belgian astronaut Frank De Winne.

Back in the UK, schools have been holding a range of celebratory parties and events to celebrate their successes. Mountfitchet Mathematics and Computing College, near Stansted, hosted a fashion show inspired by space. The starry designs were tweeted across the world and attracted twitter praise from astronauts Tim Peake, Richard Garriott and Samantha Cristoforetti."

Northbury Primary School in Barking and Dagenham planned a whole week of landing activities including rocket launching with Out of This World Learning, and astronaut fitness checks led by Classroom Medics. The students work was tweeted to astronauts who loved the designs and artwork featuring on their mission logs. Richard Garriott and Tim Peake were even discussing potential asteroid landing sites based on the children's drawings.

An exciting range of regional landing events have also been organised across the UK. On 3 June QinetiQ in Farnborough ran a 'Spin Your Teacher' event for Mission X schools using their man-carrying centrifuge - a specialist facility used to prepare fighter pilots and astronauts for the high G forces of air combat and launch/re-entry. Students were able to conduct pre-flight tests on their teachers and then watch them experience G forces of up to 4.4G on the centrifuge, thus witnessing the physiological effects of the

Earth's gravity in the laboratory. Upcoming closing events include events at the University of South Wales, the National Space Centre and the Farnborough Airshow.

Tim Peake, British ESA Astronaut said:

Once again Mission X has been a fantastic success in the UK and across Europe - congratulations to all those who have taken part. It has been great fun meeting so many of the students and discovering the many different projects that they have been involved in. Let's continue to inspire the next generation with fun science, healthy eating and good exercise - go Mission X! Mission X 2015 school pre-registration is now open. For more information contact [mx@ukspaceagency.bis.gsi.gov.uk](mailto:mx@ukspaceagency.bis.gsi.gov.uk)

More information on the Mission X: Train Like an Astronaut programme can be found on

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/335126/Annual\\_Report\\_2013\\_to\\_2014.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/335126/Annual_Report_2013_to_2014.pdf)

<http://avochschool.files.wordpress.com/2013/08/newsletter-march-14.pdf>

### NEWSLETTER NO 19 2013/2014

Dear Parents,

Mission X – "Train Like An Astronaut"

On Monday, the children in Year 5 (Sycamore Class) took part in a "Mission X" launch day at Forest Hall School. The day is part of a programme being run over the next six weeks in connection with NASA and the European Space Agency and aims to help improve children's health and fitness. The children are competing against other children locally, as well as against children nationally and internationally, with lots of the programme taking place on-line. The children are very enthusiastic about the project and are looking forward to participating in the large number of activities involved.

<http://www.southwales.ac.uk/news/2014/07/08/schoolchildren-train-astronauts-day/>



# United States

3056  
Students

75 Adults

42  
Teams

14 Cities/Regions

## Approach Taken:

In the United States, each team participated in Mission X within the parameters of different educational and organizational settings. Ninety one percent of the participants completed Mission X activities during the school day either as formal physical education or in a science class. The remaining participants performed the activities in settings such as during after school or weekend enrichment programs. Further, several groups adapted the activities for individuals with special needs and worked on Mission X activities throughout the entire year.

Throughout the challenge, webinars, emails, and telephone conversations kept team leaders informed of important dates, upcoming events, and new advances in the Mission X website, such as auto-registration. Because the teams were spread among Atlantic, Eastern, and Central time zones, effective communication and event scheduling were best done by offering several options. With children and adults alike, special rewards such as NASA and Mission X: Train Like an Astronaut stickers and temporary tattoos, once again proved invaluable throughout the year. At the successful culmination of the MX challenge, each team was issued a large banner flag which highlights four aspects of health, fitness and space science along with all 24 flags of the participating countries. These banners are hoisted in schools and remain prominently displayed for everyone entering the school to see.

Due to growth, the annual closing events were held on three separate days to accommodate various time zones and school schedules. These events included the support of three astronauts and four NASA scientists. Each year

there is a pre- and post-survey available and, following signing of both parent consent and student assent forms, each team is encouraged to conduct both surveys with their children. The results are used to provide insight on Mission X implementation, awareness of health and fitness concepts, and general interest in space. Qualitative data from feedback from leaders suggest overwhelming success in the classrooms.

Blog entries from team USA were encouraged. Leaders submitted 21 blogs this year. This, along with completing all the activities and submitting points on the website, continues to be an area of potential improvement among the teams.

## Major Points or Important Highlights:

Team USA grew in numbers this year to over 3,000 participants. This is a growth of nearly double from last year's 1532 participants and represents both new sites as well as growth from returning teams. To keep the teams connected, a new monthly newsletter was added for MX14. The newsletter contained space relevant facts for children, upcoming dates and schedules for leaders, highlights of leaders to encourage collaboration, and stories supporting Mission X and humans in space. Teams also benefitted from increased efforts in connecting via social media and many team USA leaders were frequent contributors to the MX Facebook and Twitter pages.

A new and unique MX Facebook component named, "Game ON!" had support from NASA astronauts as well the general public. Throughout the challenge, team USA and NASA leadership visited six different teams to work with



leaders and participants. Site visits included direct contact with more than 600 team USA participants. Support from astronaut Mike Hopkins kicked off the social media campaign involving video creation and media stories for team USA and Mission X. Other major astronaut support came from Tim Peake, Koichi Wakata, Samantha Christoforetti, Kate Rubins, Mike Finke and Mike Barratt. Singing performances to support Game ON included astronauts Kjell Lindgren, Peggy Whitson, Mike Foreman, Cady Coleman, Jeremy Hansen, Dottie-Metcalf-Lindenburger, Serena Aunon, David Saint-Jacques, Jeanette Epps, Mark Vande Hei, Drew Feutsal, Shannon Walker, Reid Wiseman, and Tracy Caldwell Dyson. Before the Mission X kickoff, 2012 National Physical Education Teachers of the Year visited Johnson Space Center and participated in Mission X activities. Four of these educators became new team leads.

### **Lessons Learned or Areas that Need Attention:**

As growth in Mission X continues across the country, more innovative approaches to manage team USA are required. Auto-registration for the website is one such method employed this year and, looking forward, the auto-compiling of team information for the country lead personnel is planned for future Mission X challenges.

Although the newsletter assisted in communication this year, one suggestion included the provision of separate communiques for team leaders and students. Networking and collaboration between sites can be further improved and more guidance can come from veteran team leaders to assist leadership on new teams. More blog postings and increased communication directly between teams will increase the student collaboration and team-team support within the confines of the current budget. Based on feedback and data from team USA leaders, another challenge to overcome is the need for additional content for the classroom. Participating teams have mentioned their need for high quality lessons from NASA on the

science behind the physical fitness activities. Expanding the quantity and different levels of complexity of classroom content is important to the continued success of Mission X. With NASA HRP educators providing leadership and expertise, work has begun to address this by creating more advanced level of Mission X activities for returning teams and also creating additional activities that exceed the expectations and needs for the participants in Mission X: Train Like an Astronaut.

### **Closing Events Participation:**

The annual Team USA closing events were held on three separate days and utilized the Google hangout platform to accommodate multiple sites per session. With support from JSC External Relations Office assisting with technical aspects, students from eight different sites interacted with four NASA Human Research Program scientists and, three Mission X leaders. They also had the opportunity to interact closely with astronauts Mike Barrett, Mike Finke and Kate Rubins.

As part of the closing event, students created a unique habitat and presented their design to NASA scientists to facilitate a question and answer discussion with scientists and crew members of the NASA Human Exploration and Research Analog (HERA) as well as with the astronauts. Schools in Puerto Rico and a German school in El Paso, Texas joined the closing events and added international flair with the schools from Team USA. The closing events are available online at <https://plus.google.com/events/cdmlklpc1dic68b99d8d881t7l0#events/c7s94c59tolccfdroume6em282>

### **Participation in Pre-surveys:**

Yes. Completion was optional, and offered both electronically and in paper format.

### Participation in Post-surveys:

Yes. Completion was optional, and offered both electronically and in paper format.

### Recommendation for future Mission X events:

- Continued selection of site visits with attempts for extra support for new sites
- Expanded efforts to involve people with unique needs to participate in the challenge
- Work with American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) to help

recruit new sites across the USA as well as to add new physical and classroom content to the program

- Continue the Team USA Newsletter, which will begin again in September 2014

### Support for future MX Events:

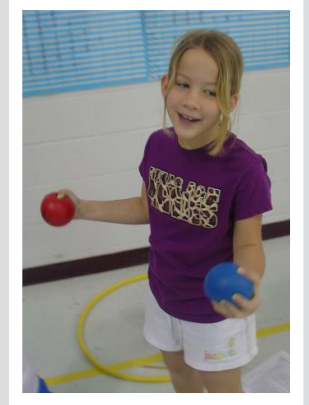
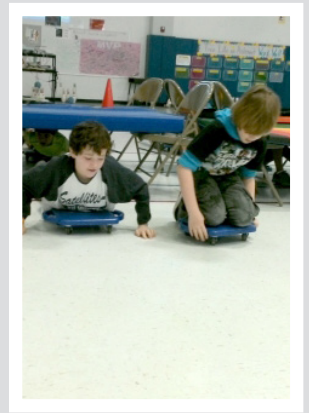
100% of return feedback forms say yes.

### Internet sites/Press Releases:

<https://storify.com/mcsumner/train-like-an-astronaut>  
<http://sharon.patch.com/groups/schools/p/congressman-joe-kennedy-iii-visits-astronaut-program-in-sharon>









# Appendix C: Roles & Responsibilities

## Mission X Program Lead

The NASA JSC HREC team leads the MX effort. This group is responsible for providing the overall leadership and guidance for the entire effort. The team maintains the MX implementation plan, coordinates planning sessions with the MX partners, and works with MX partners to ensure all aspects of the challenge are organized and implemented according to the MX plan. The group tracks and compiles sets of metrics and leads the development of the MX annual report. The HREC team coordinates with other NASA offices as necessary, including the JSC Office of Education, the ISS Program, the Exploration Systems Mission Directorate, and the Office of External Relations as well as other space agencies to ensure success of the challenge.

The MX partner responsibilities include: translation of content as necessary, participating in monthly teleconferences, supporting MX with necessary information regarding their national fitness policies, and providing content activity materials. The partners are also responsible for providing the development of various MX videos to more effectively communicate to the global MX community about ongoing activities. Each partner develops their own MX partners while creating their country challenge teams. They host a kickoff event, compile data and track progress on the challenge teams, and organize the closing event for their challenge. The partners provide their leader and student surveys and support the development and review of the MX annual report.

# Appendix D: Media Coverage

- Austrian Mission X website: [www.mission-x.at](http://www.mission-x.at)
- APA Press release on 25 April 2014 concerning the final event
- APA picture gallery final event in Austria: <http://www.apa-fotoservice.at/galerie/5327>
- Article in the “Niederösterreichische Nachrichten“ Wiener Neustadt on 28 April 2014
- 467 Austrian postings at MX website!!
- Several Facebook and Twitter postings by Peter Habison
- Czech Space Office website Mission X 2013 - <http://www.czechspace.cz/cs/mise-x-2014>
- Vratislavova school website, team “Tučníáci na Marsu” mission reports – <http://www.vratislavova.cz/index.php?p7=t&p5=4.r>
- Team “Letci v akci” photos –
- [http://dufilo.rajce.idnes.cz/Letci\\_trenuji\\_na\\_Misi\\_X/](http://dufilo.rajce.idnes.cz/Letci_trenuji_na_Misi_X/)
- [http://dufilo.rajce.idnes.cz/Jime\\_zdrave/](http://dufilo.rajce.idnes.cz/Jime_zdrave/)
- <http://v-oblacich3.webnode.cz/historie/>
- Team blog “AstroFitnes team” - <http://astroclub.zsteniscz/>
- Team blog “Veverky” - <http://liskoveckamisex.blogspot.cz/>
- <http://videnskab.dk/blog/kan-vi-overhovedet-noget-med-rummet-i-danmark>
- <http://www.skolresurs.fi/node/1745>
- [https://www.facebook.com/skolresurs?hc\\_location=timeline](https://www.facebook.com/skolresurs?hc_location=timeline)
- [http://www.dlr.de/next/desktopdefault.aspx/tabid-7694/13115\\_read-33098/](http://www.dlr.de/next/desktopdefault.aspx/tabid-7694/13115_read-33098/)
- [http://www.dlr.de/next/desktopdefault.aspx/tabid-8986/15521\\_read-38114/](http://www.dlr.de/next/desktopdefault.aspx/tabid-8986/15521_read-38114/)
- <http://www.asitv.it/media/vod/v/1163>
- <http://www.asitv.it/media/vod/v/1365>
- <http://www.diregiovani.it/rubriche/scientificamente/29884-mission-x-sani-come-un-astronauta.dg>
- [http://www.asi.it/it/press\\_room/comunicati\\_stampa/mission\\_x\\_allenati\\_come\\_un\\_astronauta\\_0](http://www.asi.it/it/press_room/comunicati_stampa/mission_x_allenati_come_un_astronauta_0)
- [http://www.esa.int/ita/ESA\\_in\\_your\\_country/Italy/Mission-X\\_salta\\_verso\\_la\\_Luna](http://www.esa.int/ita/ESA_in_your_country/Italy/Mission-X_salta_verso_la_Luna)
- [http://www.asi.it/it/educational/scuole/mission\\_x\\_2013\\_al\\_via\\_la\\_nuova\\_edizione\\_di\\_mission\\_x\\_allenati\\_come\\_un\\_astronauta](http://www.asi.it/it/educational/scuole/mission_x_2013_al_via_la_nuova_edizione_di_mission_x_allenati_come_un_astronauta)
- <http://www.astrocupola.it/2013/07/mission-x-allenati-come-un-astronauta/>
- <http://www.dire.it/dire/6370-scientificamente-mission-x-sani-come-astronauta.dire>
- [http://www.almanacco.cnr.it/reader/cw\\_usr\\_view\\_opportunita.html?id\\_articolo=5066&giornale=5047](http://www.almanacco.cnr.it/reader/cw_usr_view_opportunita.html?id_articolo=5066&giornale=5047)
- <http://goodnews.ws/blog/2014/03/28/mission-x-allenati-come-un-astronauta-2/>
- <http://www.lsdmagazine.com/mangia-come-un-astronauta-presentato-allasi-il-progetto-gastronomico-con-luca-parmitano/15322/>
- [http://www.avionews.it/index.php?corpo=see\\_news\\_home.php&news\\_id=1159257&pagina\\_chiamante=index.php](http://www.avionews.it/index.php?corpo=see_news_home.php&news_id=1159257&pagina_chiamante=index.php)
- <http://goodnews.ws/blog/2014/03/28/mission-x-allenati-come-un-astronauta-2/>
- [http://www.torinoscienza.it/articoli/mission\\_x\\_allenati\\_come\\_un\\_astronauta\\_26240.html](http://www.torinoscienza.it/articoli/mission_x_allenati_come_un_astronauta_26240.html)
- <http://www.freenewspost.com/notizie/archivio/d/1240425/oggi/scientificamente-mission-x-sani-come-un-astronauta>
- <http://www.asahi.com/articles/ASG1P3GMTG1PUJHB006.html>
- Ciência Viva Website: <http://www.cienciaviva.pt/projectos/missaox/>
- TV report: <http://bit.ly/1hOK1v5>
- Website for kids: [http://kids.sapo.pt/descobrir/ciencia/pavilhao\\_do\\_conhecimento/artigo/missao\\_espacial\\_no\\_pavilhao\\_do\\_conhecimento](http://kids.sapo.pt/descobrir/ciencia/pavilhao_do_conhecimento/artigo/missao_espacial_no_pavilhao_do_conhecimento)
- Newspaper:
- [http://www.pavconhecimento.pt/media/objectos/2880\\_gjn-10maio14.jpg](http://www.pavconhecimento.pt/media/objectos/2880_gjn-10maio14.jpg)
- [http://www.pavconhecimento.pt/media/objectos/2874\\_glua-9maio14.jpg](http://www.pavconhecimento.pt/media/objectos/2874_glua-9maio14.jpg)
- Ortaona Space Team post 1 (in Slovene): <http://www.os-dobravlje.si/index.php/dogodkivr/1351-mission-x-treniraj-kot-astronavt>
- Ortaona Space Team post 2 (in Slovene): [http://www.os-dobravlje.si/index.php/dogodkivr/1362-dan-odprtih-vrat-v-vrtovinu#g\\_1362\\_1](http://www.os-dobravlje.si/index.php/dogodkivr/1362-dan-odprtih-vrat-v-vrtovinu#g_1362_1)
- Post about Mission X in Slovenian Space Portal: [http://www.portalvvesolje.si/index.php?option=com\\_content&view=article&id=982:astronavtska-telovadba-na-o-dobravlje-p-vrtovin&catid=4:za-ole&Itemid=8](http://www.portalvvesolje.si/index.php?option=com_content&view=article&id=982:astronavtska-telovadba-na-o-dobravlje-p-vrtovin&catid=4:za-ole&Itemid=8)
- Post of Mission X challenge on the SPACE-SI website:
- <http://www.space.si/2014/slovenija-v-misiji-x-treniraj-kot-astronavt/>
- <https://www.upm.es/e-politecnica/?p=3732>
- [http://www.espacio042.com/noticias-detalle/83/el-centro-astronomico-aragones-se-suma-a--%E2%80%9Cmision-x\\_-entrena-como-un-astro](http://www.espacio042.com/noticias-detalle/83/el-centro-astronomico-aragones-se-suma-a--%E2%80%9Cmision-x_-entrena-como-un-astro)

- [nauta%E2%80%9D-como-centro-organizador/  
http://www.diariodelaltoaragon.es/NoticiasDetalle.aspx?Id=864072](http://www.diariodelaltoaragon.es/NoticiasDetalle.aspx?Id=864072)
- <http://www.abc.es/local-aragon/20140323/abci-nasa-astronautas-jovenes-huesca-201403220914.html>
- [http://article.wn.com/view/2014/03/23/Disiplina\\_de\\_la\\_NASA\\_para\\_que\\_los\\_jovenes\\_tengan\\_habitos\\_ma/](http://article.wn.com/view/2014/03/23/Disiplina_de_la_NASA_para_que_los_jovenes_tengan_habitos_ma/)
- Teknikens Hus were interviewed in radio, play forward for about 7:57 minutes to listen <http://sverigesradio.se/sida/avsnitt/283513?programid=275>
- Swedish National Space Board website <http://www.rymdkanalen.se/feed-import/2013/12/20-svenska-skolor-deltar-i-mission-x-%E2%80%93-far-trana-som-astronauter>
- Mission X in Sweden was also covered by local media/newspaper (attached pdf) and this link <http://www.unt.se/knivsta/elever-uttagna-till-nasa-projekt-2810179.aspx>
- Some of the team leaders in Sweden have also posted information about Mission X on Blogs, for example [http://xn--bjrnsbjrnarna-jmbf.se/?page\\_id=7](http://xn--bjrnsbjrnarna-jmbf.se/?page_id=7)
- [http://billingskolans02or.se/?page\\_id=223](http://billingskolans02or.se/?page_id=223)
- <http://vonbahrsskola.se/blog/2013/12/mission-x/>
- Teknikens Hus has continuously updated the information about Mission X <http://www.teknikenshus.se/skola/mission-x/>
- <http://www.hertsandessexobserver.co.uk/Education/School-Report/Launch-of-Mission-X-at-Forest-Hall-Stansted-20140202104756.htm>
- <http://www.iop.org/education/teacher/affiliation/mission-x/>
- [newsletter/file\\_63327.pdf  
http://stem-ncl.org/news/2014/05/19/mission-x-train-like-an-astronaut/#comments](http://stem-ncl.org/news/2014/05/19/mission-x-train-like-an-astronaut/#comments)
- [http://www.salfordonline.com/educationnews\\_page/48734-](http://www.salfordonline.com/educationnews_page/48734-)
- <http://www.derbyshiretimes.co.uk/news/grassroots/schoolchildren-explore-space-industry-1-6510581>
- [summerville\\_primary\\_reach\\_for\\_the\\_stars\\_with\\_nasa\\_mission\\_x.html](http://www.summervilleprimaryreachforthestarswithnasa.com/mission_x.html)
- <https://blogs.glowscotland.org.uk/nl/KHP5/2014/02/05/mission-x-train-like-an-astronaut/>
- <http://www.adsadvance.co.uk/training-like-an-astronaut-at-the-house-of-commons.html>
- <http://www.bbc.co.uk/cbbc/clips/p01ygtzx>
- <http://www.bbc.co.uk/mediacentre/latestnews/2013/star-gazing-live-2014>
- <http://www.st-margarets-barking.org.uk/Newsletters/No17-230114.pdf>
- [http://www.studfallschool.co.uk/curriculum\\_list.asp?Section=202&Imagepage=2&subpagename=cur\\_scienc](http://www.studfallschool.co.uk/curriculum_list.asp?Section=202&Imagepage=2&subpagename=cur_scienc)
- [http://www.barkinganddagenhampost.co.uk/news/barking\\_schoolchildren\\_show\\_they\\_have\\_the\\_right\\_stuff\\_at\\_european\\_space\\_centre\\_1\\_3653586](http://www.barkinganddagenhampost.co.uk/news/barking_schoolchildren_show_they_have_the_right_stuff_at_european_space_centre_1_3653586)
- <http://www.innovatemy.school.com/industry-expert-articles/item/1032-mission-x-what-space-travel-can-offer-to-students?.html>
- <http://www.spacestudiobanbury.org/275/news/article/18/in-a-spin>



# Appendix E: Terms of Reference

Increasingly sedentary lifestyles among children and adolescents, combined with unhealthy diets, are two of the most significant risks that may lead to the onset of chronic adult health issues. International research demonstrates that physical inactivity and poor eating habits among children can lead to major non-communicable diseases, including high blood pressure, cardiovascular disease, and type-2 diabetes. Organizations worldwide recognize this problem and advocate increased physical activity and healthier diets for young people in order to promote healthier societies.

In light of these increasingly global health issues, and seeking to take actions to help address them, the Mission X: Train Like an Astronaut (MX) Multi-Year Campaign aims to encourage proper exercise and nutrition starting at an early age. This concept was developed by members of the International Space Life Sciences Working Group (ISLS-WG) and is an effort of the space agencies and organizations involved in the project to encourage healthy, active lifestyles among children. Using the unique example of space explorers, the Participating Entities seek to motivate and educate young people worldwide that good fitness and nutrition are life-long endeavours.

These Terms of Reference establishing the MX Multi-Year Campaign outline the parameters for the activities and the anticipated role of each Participating Entity.

## 1. PURPOSE AND SCOPE OF ACTIVITIES

### 1.1 Purpose

The purpose of the MX Multi-Year Campaign will be to demonstrate to children the value of exercise and nutrition by

- Developing a multi-national health and fitness challenge that each Participating Entity will implement within its own region;

- Maintaining and enhancing an activity website to provide student participants a forum for exchange and an online database for activity-related materials; and
- Performing international outreach opportunities with astronauts and to increase awareness regarding the importance of physical fitness and good health.

### 1.2 Scope of Activities

The MX Multi-Year Campaign, also referred to as the activity, will focus on accomplishing the health and fitness challenge outlined in these Terms of Reference. Upon completion of the multi-year campaign, the Participating Entities may choose to extend MX by repeating or adapting the project in the future.

## 72 2013 ANNUAL REPORT | MISSION X: TRAIN LIKE AN ASTRONAUT

## 2. PARTICIPATION GUIDELINES AND IMPLEMENTATION PROCEDURES

### 2.1 Participating Entities

Participation in the activity is open to government space agencies or organizations delegated by space agencies with established educational or outreach programs for children, and the ability meet the responsibilities outlined in paragraph 2.3 (hereinafter “Participating Entities”).

Space agencies or organizations that previously contributed to the planning and development of the Mission X: Train Like an Astronaut pilot project can become Participating Entities at any time through an executive level acceptance of these Terms of Reference by a letter addressed to the Director of the Space Operations Division, NASA Office of International and Interagency Relations.

### 2.2 Responsibilities of the Chair

NASA will serve as the Chair for the activity. The European Space Agency (ESA) has offered to support the Chair as the primary point of contact for participating ESA nations. The Chair will contribute to the Challenge.

- Providing health and fitness educational materials to be used during the activity;
- Coordinating monthly teleconferences, and additional planning sessions as needed, with the Participating Entities;
- Drafting and maintaining the MX planning documents;
- Managing the MX website, [www.trainlikeanastronaut.org](http://www.trainlikeanastronaut.org);
- Supporting the Participating Entities to ensure that the Challenge is properly implemented;
- Compiling data on the activity and leading the development of an annual report; and
- Fulfilling the responsibilities of a Participating Entity as outlined in paragraph 2.3.

### 2.3 Responsibilities of Participating Entities

Participating Entities will contribute to the development and implementation of the activity by

- Providing health and fitness educational materials to be used during the activity, including information on national fitness policies;
- Taking part in monthly teleconferences and additional planning sessions;

- Providing regular feedback on MX planning documents;
- Sharing agency and organization web links and online content for the MX website;
- Sharing available video content for the MX promotional video;
- Working with domestic organizations as necessary that will help organize and host the activity;
- Conducting activities to implement the activity within their country, including hosting a kick-off event, compiling data and tracking progress on the Challenge teams, and organizing the closing event for their domestic competition;
- Supporting the development and review of an annual report; and
- Working with the Chair and other Participating Entities to ensure success of the project.

### 3. SCHEDULE

The Participating Entities plan to implement the activity along the following annual schedule between 2012 and 2014:

- Pre-Challenge Phase: Spring to December
- Challenge Phase: 6 week period between January and March
- Post-Challenge Phase: Spring to Fall

### 4. STATUS OF TERMS OF REFERENCE AND RESOURCES

The adoption of these Terms of Reference will not create any legal obligations on the part of Participating Entities in the activity. Unless other arrangements are made, each Participating Entity will bear the costs of discharging its responsibilities under this Arrangement, including travel and subsistence of its own personnel and transportation of all goods for which it is responsible. The amount of resources provided for any particular activity may vary among Participating Entities.

### 5. EXCHANGE OF DATA AND GOODS

Materials developed for the activity are made available on the MX website, [www.trainlikeanastronaut.org](http://www.trainlikeanastronaut.org), including images and educational guides that are available worldwide without restriction as to their use or redistribution.

**6. RELEASE OF INFORMATION ABOUT THE PROJECT**  
Participating Entities may freely release information on the activity as deemed appropriate.

### 7. MODIFICATIONS

These Terms of Reference may be modified by the Participating Entities by consensus.

### 8. WITHDRAWAL

Any Participating Entity may withdraw from the activity at any time by providing written notification to the Director of the Space Operations Division, NASA Office of International and Interagency Relations.

### 9. ESTABLISHMENT

These Terms of Reference are effective as of October 1, 2011.



# Appendix F: Surveys

## Pre-Survey

Students: Before beginning the Mission X 2014 Challenge, we would like you to answer some questions. Your answers are important to help NASA create exciting experiences for students. Please select an answer for each question. Your identity and the information you provide will always remain confidential.

CODE\_A Name: \_\_\_\_\_ DATE\_A Today's Date \_\_\_\_\_  
GRADE\_A Grade: \_\_\_\_\_ SCHOOL\_A School: \_\_\_\_\_  
TEAM\_A Team Name: \_\_\_\_\_  
AGE\_A Age: \_\_\_\_\_ BIRTH\_A Birthdate (Day/Month/Year) (optional): \_\_\_\_\_

GENDER\_A GENDER  
I am Male I am Female

CITY\_A City: \_\_\_\_\_ STATE\_A : \_\_\_\_\_  
COUNTRY\_A Country: \_\_\_\_\_  
WEIGHT\_A Weight (optional): \_\_\_\_\_  
HEIGHT\_A Height (optional): \_\_\_\_\_

### MISSIONX\_A

1. Is this the first time you participated in Mission X: Train like an Astronaut?

- a. Yes, this is my first time
- b. No, I participated last year

### PA\_A

2. I participate in physical activity such as sports, playing in the playground, and exercise out of school.

- a. Never
- b. Sometimes in a month
- c. Once or two times per week
- d. Three to five times per week
- e. Every day

### FRUITS\_A

3. I eat fruits (for example, oranges, apples, bananas, etc.).

- a. Never
- b. Sometimes in a month
- c. Once or two times per week
- d. Three to five times per week
- e. Every day

### VEG\_A

4. I eat vegetables (for example, spinach, carrots, broccoli, etc.).

- a. Never
- b. Sometimes in a month
- c. Once or two times per week
- d. Three to five times per week
- e. Every day

#### SUGAR\_A

5. I drink sugary drinks (for example, soft drinks, fruit juices, milkshakes, sport drinks etc.).

- a. Never
- b. Sometimes in a month
- c. Once or two times per week
- d. Three to five times per week
- e. Every day

#### BREAKFAST\_A

6. I have breakfast.

- a. Never
- b. Sometimes in a month
- c. Once or two times per week
- d. Three to five times per week
- e. Every day

#### GREASY\_A

7. I eat greasy foods (for example, pizzas, sausages, fried foods, etc.).

- a. Never
- b. Sometimes in a month
- c. Once or two times per week
- d. Three to five times per week
- e. Every day

#### TV\_A

8. Every day, I watch TV and/or play on the computer, and/or play videogames.

- a. Less than 1 hour
- b. Between 1-2 hours
- c. Between 3-4 hours
- d. More than 4 hours

#### INTERESTSP\_A

9. I am interested in human spaceflight and space exploration.

- a. Yes
- b. No
- c. I don't know

#### INTERESTNASA\_A

10. I am interested in the work NASA does.

- a. Yes
- b. No
- c. I don't know

## Appendix F: Surverys Continued

### Unit Questions:

#### GRAVITY\_A

11. When astronauts live and work in space , they \_\_\_\_\_.
- a. lose memory
  - b. lose bone mass
  - c. lose height
  - d. lose lung capacity
  - e. I don't know

#### BONEMASS\_A

12. The most important purpose of jump training and exercises that use your own body weight is to strengthen muscles and \_\_\_\_\_.
- a. brain
  - b. coordination
  - c. eyes
  - d. bones
  - e. I don't know

#### PHYACTV\_A

13. Physical activities that best improve my \_\_\_\_\_ and \_\_\_\_\_ are endurance exercises such as running, swimming, cycling, playing basketball, etc.
- a. heart and lungs
  - b. lungs and kidneys
  - c. heart and liver
  - d. hair and eyes
  - e. I don't know

#### HEARRATE\_A

14. What happens to the heart rate when doing exercises?
- a. stays the same
  - b. decreases
  - c. jumps a beat
  - d. increases
  - e. I don't know

#### CORE\_A

15. In order to maintain a correct posture, it is very important to work on strengthening \_\_\_\_\_ muscles.
- a. arm
  - b. leg
  - c. core
  - d. neck
  - e. I don't know



ENERGY\_A

16. The food we eat converts into energy. Energy from food is measured in \_\_\_\_\_.

- a. carbohydrates
- b. meters
- c. calories
- d. nutrition
- e. I don't know

AEROBIC\_A

17. Aerobic exercises use \_\_\_\_\_ to produce energy.

- a. blood
- b. muscles
- c. proteins
- d. oxygen
- e. I don't know

18. Astronauts require assistance from a mechanical vehicle when exploring the surface of planets. In case of a mechanical problem, astronauts must be physically capable of a walk-back to the base-station. For that reason, it is necessary for astronauts to have a good level of \_\_\_\_\_.

- a. coordination
- b. speed
- c. flexibility
- d. endurance
- e. I don't know

19. For healthy and strong bones it is important to take enough \_\_\_\_\_ from food.

- a. Calcium and Vitamin D
- b. Zinc and Vitamin B
- c. Calcium and Vitamin E
- d. Iron and Vitamin D
- e. I don't know

## Appendix F: Surveys Continued

### Post-Survey

Students: After completing the Mission X 2013 Challenge, we would like you to answer some questions. Your answers are important to help NASA create exciting experiences for students. Please select an answer for each question. Your identity and the information you provide will always remain confidential.

CODE\_A Name: \_\_\_\_\_ DATE\_A Today's Date \_\_\_\_\_  
GRADE\_A Grade: \_\_\_\_\_ SCHOOL\_A School: \_\_\_\_\_  
TEAM\_A Team Name: \_\_\_\_\_  
AGE\_A Age: \_\_\_\_\_ BIRTH\_A Birthdate (Day/Month/Year) (optional): \_\_\_\_\_

GENDER\_A GENDER  
I am Male I am Female

CITY\_A City: \_\_\_\_\_ STATE\_A : \_\_\_\_\_  
COUNTRY\_A Country: \_\_\_\_\_  
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#### MISSIONX\_A

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- a. Yes, this is my first time
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#### PA\_A

2. I participate in physical activity such as sports, playing in the playground, and exercise out of school.

- a. Never
- b. Sometimes in a month
- c. Once or two times per week
- d. Three to five times per week
- e. Every day

#### FRUITS\_A

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6. I have breakfast.

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- b. coordination
- c. eyes
- d. bones
- e. I don't know

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- b. meters
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- d. nutrition
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- c. proteins
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